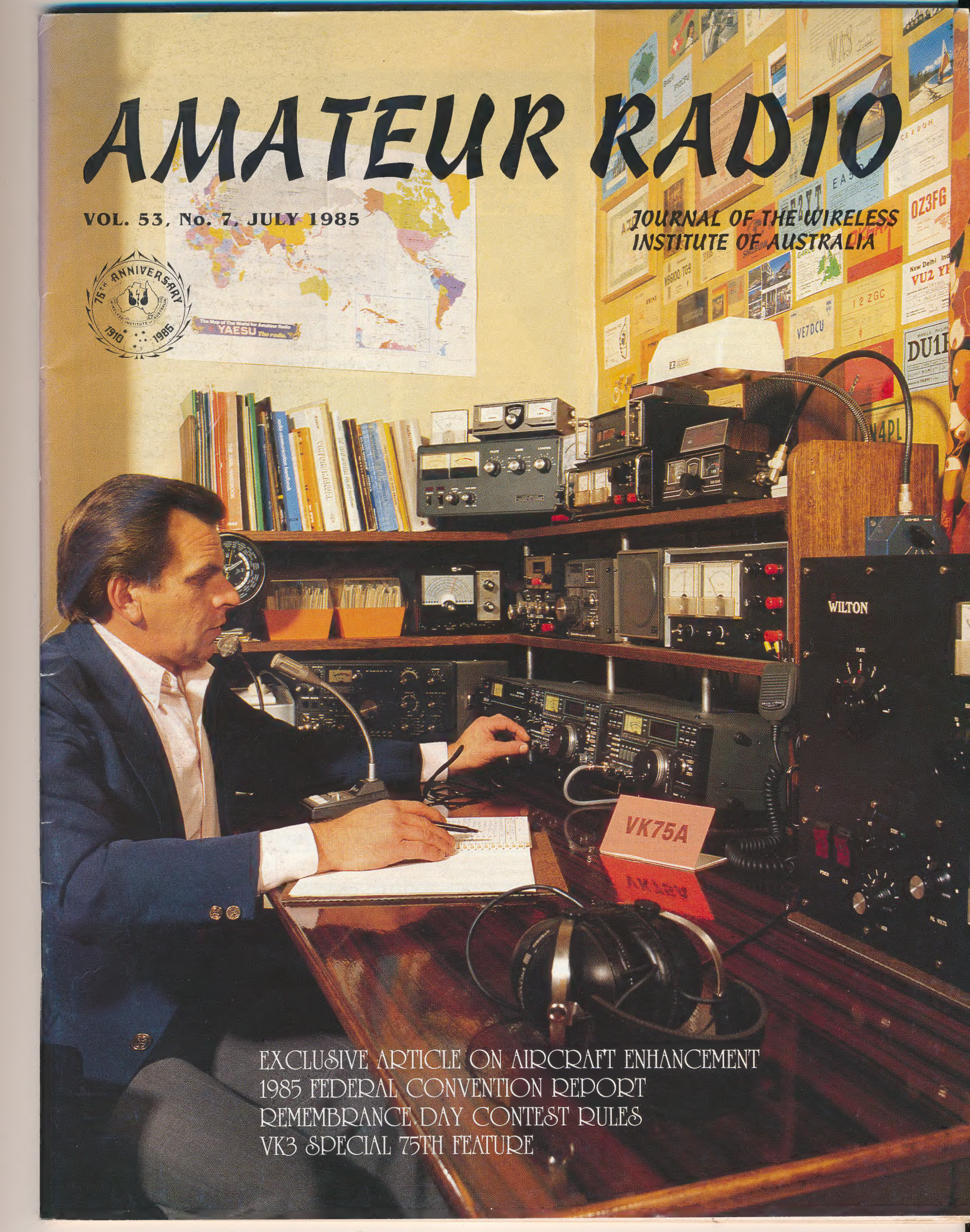
AMATEUR RADIO

VOL. 53, No. 7, JULY 1985

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA



EXCLUSIVE ARTICLE ON AIRCRAFT ENHANCEMENT
1985 FEDERAL CONVENTION REPORT
REMEMBRANCE DAY CONTEST RULES
VK3 SPECIAL 75TH FEATURE

GFS FOR YOUR COMMUNICATIONS GEAR

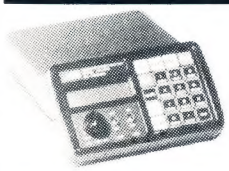
SCAN THE BANDS WITH OUR NEW SX-155

PROGRAMMABLE POCKET SCANNER

This new unique scanner provides coverage of 26-32, 68-88, 138-176 and 380-514 MHz with a sensitivity of less than 0.5 uV. Four banks of 40 memory channels, total of 160 memories. High scan speed of 16 CH/SEC. Auto search and store mode. Priority channel. 4 hour life on supplied Nicad batteries. 24 Hour clock. Selectable Scan/Search delay of 0.1 or 2 seconds. Includes Nicads, charger, carrying-case & antenna.

ONLY $449

AR-2001 CONTINUOUS COVERAGE 25-550 MHz SCANNER



If you want continuous coverage, AM/FM wide & narrow with 20 memories we suggest you choose the AR-2001 from GFS, authorised distributors.

$559 +$14 P&P

LOW LOSS FOAM DOUBLE SHIELDED COAXIAL CABLE

LOSS IN DB/30 METRES

TYPE	100 MHz	200 MHz	400 MHz	900 MHz
5D-FB	1.86	2.70	3.90	6.00
8D-FB	1.20	1.74	2.58	3.90
10D-FB	0.99	1.44	2.10	3.30
12D-FB	0.84	1.23	1.80	2.79
RG-8/U	1.95	N/A	N/A	7.44
RG-213	1.74	N/A	N/A	7.20

FB SERIES CABLE & N CONNECTORS

CABLE		N-CONNECTORS	
5D-FB.....	$2.60 m	NP-5DFB.....	$10.90
3D-FB	$3.80 m	NP-8DFB.....	$11.30
10D-FB.....	$5.80 m	NP-10DFB.....	$11.60
12D-FB.....	$7.90 m	NP-12DFB.....	$12.50

BUMPER HOOK MOBILE MOUNT

$49 + $8 P&P

HS-FB is a heavy duty antenna mount designed to fit on your car's tow hook or tow bar.

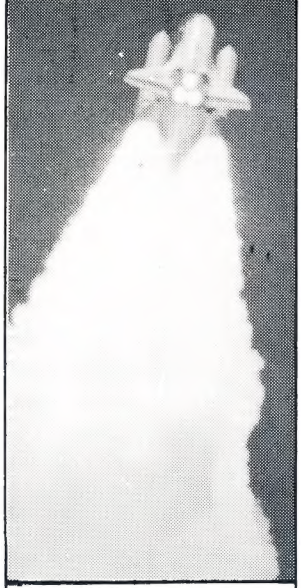
NO HOLE MOUNT

$11 + $6 P&P

The HS-25 is a "No Hole" boot lip mobile antenna mount designed for Scalar type bases.

Our fully equipped service department services a range of communications equipment. Hourly rate $37.

WITH COMMUNICATIONS ACCESSORIES FROM GFS



RTTY/SITOR & FAX FOR TRS-80C

DCM is a receive only program for the TRS-80C on CW-BAUDOT-SITOR.

RBA provides transceive on RTTY (BAUDOT) – ASCII.

(Note: A modem such as the MDK-17 or MFJ-1224 is required with these programe.

DCM $75 + $5 p&p
RBA $55 + $5 p&p

FAX is a high resolution weather facsimile programe for displaying weather maps etc, received on shortwave. It does not need a modem.

Morse $55 + $5 p&p
FAX $75 + $5 p&p

MORSE is a unique program for sending & receiving Morse code. 1-99WPM

ANTENNA MATCHER FOR CONTINUOUS HF COVERAGE – MFJ-941D

Apart from being extremely versatile the MFJ-941B includes a 6-position coax-switch, SWR power meter, 4:1 Balun and will feed balanced line, single wire and coaxfeed antennas.

$334 + $14 P&P

PROFESSOR MORSE CODE GENERATOR ELECTRONIC KEYER

MFJ-410 generates unlimited random morse code groups for practice. Includes speed meter. 5-50 wpm and variable spacing between characters. Also doubles as an Electronic Keyer.

$359 + $14 P&P

EXPANDED RANGE OF HF-VHF-UHF ANTENNAS

BROADBAND ANTENNAS

LOG SP – 65 to 520 MHz
$177 + $14 p&p
LOG-S 100 to 520 MHz
$125 + $14 p&p

HF BROADBAND DIPOLES

New T2-FD series provides continuous HF coverage

200 WATT MODELS

3.5-30-T2-FD-200 is 25m long, 3.5-30 MHz.
1.8-30-T2-FD-200 is 30m long, 1.8-30 MHz, **both priced at $149 + $14 p&p.**

2KW MODELS

3.5-30-T2-FD-2KW is 40m long, 3.5-30 MHz.
1.8-30-T2-FD-2KW is 50m long, 1.8-30 MHz, **both priced at $189 + $14 p&p**

ACTIVE OUTDOOR ANTENNA FOR SWL's

MFJ-1024 gives longwire performance from its 54" whip, 50 KHz to 30 MHz

$359 + $14 P&P.

BROADBAND OMNIDIRECTIONAL ANTENNAS FOR SCANNERS

GDX-1: 16 element discone 80-480 MHz suits transmitters and receivers.

$132 + $14 p&p

SCAN-X: 6 element discone for receive applications 65-520 MHz.

$84 + $14 p&p

2 metre RINGO

The antenna for 2 mx FM work. 9dBi gain, omnidirectional.

$83 + $14 P&P

GIVE YOUR RINGO ANOTHER 1.5dB

with our RK-1 decoupling radial kit.

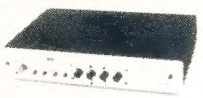
$23 + P&P

FOR THE RTTY OPERATOR

MDK-17 (KIT) MOD-DEMOD

A high performance RTTY/CW modem kit for use on a computer or teletype. Offers high noise immunity on receive. **$129 + $6 p&p (kit) or $199 $8 p&p, (assembled).**

MFJ-1224



Versatile RTTY/CW modem. Interfaces with a computer and is supplied with software for VIC-20 or Commodore-64. **$345 + $14 p&p**

Great Circle Map

Now point your beam in the correct direction using this Great circle Mapl centred on Melbourne **$2** + $3 P&P.

What is stronger than wire of equivalent cross section, non corrosive, non conductive, and has virtually no elongation?

NEW DEBEGLASS WIRE

Now, guy your tower without having to break the wires with dozens of egg insulators, or worrying about them corroding away due to a salty atmosphere. Our Debeglass wire alternative is made using continuous filament fibreglass yarn, jacketed in UV stabilized vinyl chloride. Compare the figures below.

	DB-4 (4mm)			DB-5 (5mm)		
	Core diam (mm)	Wt of 200mm (gm)	Tensile Str (kg)	Core diam (mm)	Wt of 200mm (gm)	Tensile Str (kg)
Debeglass	2.5	3.9	430	3.0	6.3	560
Steel wire	2.5	5.6	370	3.15	9.3	530

DB-4 (4mm) $0.51m DB-5 (5mm) $0.71m
We also have DB-6 (6mm) available on special order.

electronic imports

AUSTRALIAN DISTRIBUTOR

GFS ELECTRONIC IMPORTS

Division of Deribar Pty. Ltd.

17 McKeon Road, Mitcham, Vic. 3132
PO Box 97, Mitcham, Vic. 3132
Telex: AA 38053 GFS
Phone: (03) 873 3777 3 Lines

Photograph courtesy Barry Wilton VK3XV.

VK3 was the first WIA Division to operate the special commemorative call, VK75A which opened on SSB at 0001 UTC on 15 March from the station of Barry VK3XV and worked continuously for 48 hours. Operation was on 40 and 20 metres with some contacts on 2m FM and SSB. Propagation was very poor on the higher frequencies and 40m proved to be the most reliable. A total of 503 DX stations were worked covering 41 countries. The station was operated by Fred Mackiewicz VK3ZZN, John Ambler VK3DJE, and Barry Wilton VK3XV. Equipment line up included an IC-751 driving a pair of 3 500 Zs in a home brew linear, a FT101ZD driving a FL2100 Z linear, and an IC-271H.

SPECIAL FEATURES

Federal Convention Report for 1985 14
George William Selby:
An Early Wireless Pioneer 28
June's Best Photographs 6
Philately Day 35
Pre-WWII Examination Paper 63
Short Waver 55
Some Milestones in Communications 36
Stolen Equipment Register 62
Television: *A Pioneer Remembers* 30
The Future:
A Prognostic Look Ahead 37
The Ripple from the South:
by Alf Chandler VK3LC 11
Victoria: Premier Division
by Jim Linton VK3PC 27
WIA Victorian Division Presidents 32
WIA: *To Many it's a Mystery Place* 37

TECHNICAL FEATURES

Aircraft Enhancement of VHF/UHF Signals
by Doug McArthur VK3UM 4
Homebrew Regulated Power Supply
by Des Greenham VK3CO 20
Spurious Transmission Checker
by Bruce Hannaford VK5XL 21
Try This — *Power Supply Ammeter by Arthur Sibley* 6

REGULAR FEATURES

Advertiser's Index 64
ALARA — *including full list of members* 48
AMSAT Australia 24
Answers to AOCP Theory Sample Exam 64
AR Showcase —
RTTY/CW Mod-Demod 19
Simple Termination Clips 19
Awards —
Alaska Goldpanner 40
Annual VK Award Updates 40
ARRL, CQ & 73 40
Copper Coin of Falun 41
Italian . . . Rules for 3 Awards 41
UN at 40 19
Washington Totem 41
Worked Active Bruges Amateur Stations 41
Worked all Continents 40
Club Corner 56
Contests —
ALARA Mini Test Rules 48
Australian 1984 Contest Champion 53
Colombian Independence 1985 Rules 53
CW 75 Anniversary CW Results 55
European DX Rules 53
John Moyle Memorial Field Day 1985 Results 51
Remembrance Day 1985 Rules 50
SEAnet WW DX 1985 Rules 54
Editor's Comment 3
Education Notes —
Trial AOCP Exam Paper 46
Equipment Review —
Kenwood TS-940S All Mode HF Transceiver 8
Five-Eighth Wave 59
Forward Bias —
VK1 Division 59
Hamads 63
How's DX 38
International News —
including 60th Anniversary of IARU 18
Intruder Watch 47
Ionospheric Predictions 63
Listening Around 56
Magazine Review 47
Obituaries — *Roy Baxter, Mike Jenner, Fred Mazure and Lionel Swain* 62
Over to You! 60
Packet Radio — *In Turmoil* 44
Pounding Brass 42
QSP ..... 6, 34, 42, 49, 57 & 59
Silent Keys — *VK4FJ, VK6GQ, VK7MJ, VK6MZ, VK2CS, VK2AEF, VK5ML, VK4FKL, VK1KPC & VK2MR* 62
Spotlight on SWLing 49
VHF UHF — *an expanding world* 22
VK2 Mini Bulletin 57
VK3 WIA Notes 34
VK4 WIA News 58
WA Bulletin 59
WIA 75th Anniversary News 6

AMATEUR RADIO

Published monthly as the official journal by the Wireless Institute of Australia, founded 1910. ISSN 0002 — 6859. Registered Office: 3/105 Hawthorn Road, Caulfield North, Vic. 3161. Telephone: (03) 528 5962.

Ever read Eric's VHF UHF column and wondered exactly what 'aircraft enhancement', which he refers to frequently, means? Doug VK3UM, one of the pioneers of this mode in Australia, has written an exclusive article for AR, p4, explaining how aeroplanes function in enhancing signals on 144 and 432 MHz, the experiments he and others have conducted on this medium and how others may join in 'to give it a try'.

There is another 'Amateur in Space' launch due around the middle of this month and the WIA wrote to enquire if the amateur, Tony England, would be able to send greetings to the WIA for the 75th Anniversary whilst passing over Australia. Turn to p6 for David K1ZZ's reply.

Interesting comparison! Brenda VK3KT, Federal Education Co-Ordinator, features a trial AOCP exam paper in her column this time and on page 63 there is a Pre-World War II exam paper courtesy of Fred VK4RF. This exam was a written paper with a time allowed of two hours, in which the candidate had to draw diagrams, write answers and also do a little calculating whereas the exams of today, the candidate has to know the answers and tick the appropriate box.

The rules for the 1985 Remembrance Day Contest are printed in this magazine and contestants are requested to peruse the rules thoroughly prior to the contest. There are a few alterations to the rules, but Ian VK5QX has explained them finitely in his lead-up to the rules and has also included diagrams of how the log sheets should be laid out. Also announced in the contest columns is the winner of the Contest Champion for 1985 and the results of the John Moyle Memorial Field Day Contest.

International News, p18, features a special story of how the IARU came into being as it celebrates its 60th Anniversary.

. Next month's magazine will feature a review of the Icom IC-735 All Mode HF Transceiver and an informative article of the history of VK6 bridging the communications gap with the eastern states and overseas on VHF and UHF. Also there will be details of a lecture given by Dr Karl Meinzer DJ4ZC in Melbourne on 28th May. Karl visited Sydney, Adelaide and Melbourne en route to the annual amateur convention in Christchurch. He is one of the best-known members of the German AMSAT DL, which was largely responsible for our present operational satellite, OSCAR 10. (BKP)

DEADLINE

All copy for September 1985 AR (including regular copy of Hamads and columns) must arrive at PO Box 300, Caulfield South, Vic 3162 at the latest by midday 22nd July 1985.

EDITOR
BILL RICE* VK3ABP

TECHNICAL EDITORS
RON COOK* VK3AFW
PETER GAMBLE* VK3YRP
EVAN JARMAN* VK3ANI
GIL SONES* VK3AUI

CONTRIBUTING EDITORS
Joe Ackerman VK4AIX
Ron Cook* VK3AFW
Brenda Edmonds VK3KT
Marshall Emm VK5FN
Ron Fisher* VK3OM
David Furst VK3YDF
Roy Hartkopf* VK3AOH
Robin Harwood VK7RH
Ron Henderson VK1RH
Ian Hunt VK5QX
Colin Hurst VK5HI
Eric Jamieson VK5LP
Margaret Loft VK3DML
Bill Martin VK2COP
Ken McLachlan VK3AH
Len Poynter* VK3BYE

DRAFTING
GEORGE BROOKS
LIZZ KLINE

BUSINESS MANAGER & SECRETARY
REG MACEY

ADVERTISING MANAGER
JOHN J A HILL VK3WZ
***Member of Publications Committee**

Enquiries and material to:
The Editor
PO Box 300, Caulfield South, Vic. 3162

Material should be sent direct to **PO Box 300, Caulfield South, Vic 3162**, by the **25th of the second month preceding publication. Note: Some months are a few days earlier due to the way the days fall. Phone: (03) 528 5962.**

Hamads should be sent direct to same address.

Acknowledgement may not be made unless specially requested. All important items should be sent by certified mail. The editor reserves the right to edit all material, including Letters to the Editor and Hamads, and reserves the right to refuse acceptance of any material, without specifying a reason.

Trade Practices Act: It is impossible for us to ensure the advertisements submitted for publication comply with the Trade Practices Act 1974. Therefore advertisers and advertising agents will appreciate the absolute need for themselves to ensure that, the provisions of the Act are complied with strictly.

Victorian Consumer Affairs Act: All advertisers are advised that advertisements containing only a PO Box number as the address cannot be accepted without the addition of the business or residential address of the box-holder or seller of the goods.

Production: BETKEN PRODUCTIONS
5 Masefield Avenue, Mooroolbark, 3138.

Laser Scanned Colour Separations by: QUADRICOLOUR INDUSTRIES PTY LTD
22-24 Glenvale Crescent, Mulgrave 3170
Tel (03) 560 2222

Typesetting by: YORK PRESS PTY LTD
1-19 Hoddle St. Abbotsford 3067. Tel: (03) 419 4855

Typesetting by: B-P TYPESETTING
Geddes St. Mulgrave, 3170
Tel: (03) 561 2111

Typesetting by: QUADRICOLOUR INDUSTRIES PTY LTD.
22-24 Glenvale Crescent, Mulgrave 3170
Telephone: (03) 560 2222

Photographic film and processing material courtesy AGFA-GEVAERT LTD AUSTRALIA

Printers: WAVERLEY OFFSET PUBLISHING GROUP
Geddes Street, Mulgrave, 3170
Tel: (03) 560 5111.

Mail Processing by: Automail Pty. Ltd.
14 Stamford Road, Oakleigh East 3166
Telephone: (03) 568 6677

IT'S HERE

Australia's newest and best Electronics Magazine

FEATURING
Projects
Technical Articles
Reviews
Computing
Communications
News

The AUSTRALIAN ELECTRONICS Monthly
JULY 1985 $2.60* NZ$3.50
WIN A HANDHELD SCANNER
excitement electronics
Build the LISTENING POST
1st ISSUE!
BEAT-TRIGGERED STROBE to build
— decode and print radio weather pictures, radiotelelype and morse code with your computer
Microbee Viatel conversion • Scanner antenna to build • Components & codes explained • Build a 60W MOSFET amp module • Hi-Fi: Nakamichi RX-505 cassette deck reviewed • New Amstrad computer reviewed.
DMM OFFER: UNDER $50!

Roger Harrison VK2ZTB
EDITOR

David Tilbrook B.Sc
PROJECT DIRECTOR

JUST $2.60 *at*

your local newsagent or favourite electronics retailer.

NEW 1985/86
EMTRONICS
CATALOGUE
OUT NOW!

For all your radio communications needs send for Australia's one-stop

RADIO COMMUNICATIONS CATALOGUE.

Send $1 stamp for postage.

94 Wentworth Avenue, Sydney, NSW 2000

Phone: (02) 211 0988. Telex: AA73990 EMOLEC

Correspondence & Mail Orders: Box K21, Haymarket, NSW 2000.

emtronics

94 Wentworth Avenue, Sydney, NSW, 2000
Phone: 211 0988 Telex: AA 73990 EMOLEC
Correspondence & Mail Orders: Box K21, Haymarket, NSW, 2000

EDITOR'S COMMENT

MORE HISTORY

As part of the WIA 75th Anniversary activities, the Publications Committee has, for some months, been searching through old issues of AR to extract items of historical interest. Ultimately this collection will be the framework supporting a full and detailed history of the WIA. We simply do not have enough people with enough spare hours to produce such an ambitious work before the end of 1985. Perhaps our centenary in 2010 could be the target for which our historians should aim.

In the meantime we hope to publish a number of historical reviews during the latter part of this year, each probably limited to just one particular aspect of amateur radio. Thoughts which occur to us are the evolution of VHF, or the techniques and development of SSB, or the growth of amateur television. Amateur radio has such a rich range of individual fields of activity that many full-scale books would be needed to do justice to all.

One such area, of obvious interest to the people who produce it, is the evolution of this magazine. On its own this could be the subject of a book; but let us look at one small aspect, the way in which costs have changed since the first post-war printed issue in October 1945. (The history of AR from its first issue, October 1933, until the war reduced it to a duplicated newsletter, is yet another story.)

The October 1945 issue was of 20 pages and had a cover price of 6 pence (or 5 cents in post-1966 decimals). This, from a value for money angle, is ¼ cent per page. *Seems cheap enough, doesn't it?* In 1949 the price rose to 9 pence, still for 20 pages, although odd issues were of 24 and very rarely as many as 28 pages. So we might say it was still about the same cost per page until 1953, when inflation really hit and the price went to one shilling (10c) for only 16 pages (in January 1953).

How does this compare with today? We do not show a cover price these days, for several good reasons, but each member pays from his/her annual subscription to the Institute about $1 per monthly copy. Each issue now has 64 pages, so the cost per page is less than 2c, about a seven-fold increase over 1945, but only 2½ times as much as that January 1953 issue! And we now have full-colour covers and vastly more information between them!

In 1950 the price of petrol was 3 shillings a gallon (about 7c/litre). It is now nearing 60c/litre in the capital cities. Even as late as 1958 a Melbourne morning paper cost fourpence (3.3 cents) but is now 30 cents. "Amateur Radio" is now even better value than ever. *Can you afford not to belong to the WIA?*

Bill Rice VK3ABP
Editor

IF YOU CAN'T FIND IT ANYWHERE ELSE —
BECAUSE IT'S TOO SMALL (LIKE IS, SPRATLY IS.) —
DON'T WASTE MORE TIME, USE:

THE COMMUNICATIONS ACCESSORY EVERY OPERATOR SHOULD HAVE

Some of the features are:

AMATEUR RADIO PREFIXES
WITH STATE PREFIXES.
GREAT CIRCLES.
WAZ ZONES
ITU REGIONS
10m BEACON LOCATIONS AND CALLSIGNS.
THE MOST IMPORTANT STANDARD FREQUENCY AND TIME SIGNAL STATIONS.
SHORTWAVE BROADCAST TRANSMITTERS.
CONTINENTAL BORDERLINES.
INTERNATIONAL DATELINE.
DAYLIGHT/DARKNESS ZONES.
TWILIGHT ZONES.
SUNRISE/SUNSET TIMES.
POSITION OF SUN DEPENDING ON DAY TIME AND SEASON.
SUBSOLAR POINT PROJECTION.
DISTANCE MARKINGS ON GREAT CIRCLES.

Price: $174.00 ex warehouse Perth

Airfreight: $8 within Australia

"THE GRAY-LINE RADIO GLOBE"
by Columbus
(A WEST-GERMAN QUALITY PRODUCT)

Distributors for Columbus Terrestrial, Celestial and Lunar Globes

RIALTO INTERNATIONAL
26 Karoonda Rd, Booragoon, W.A. 6154
Tel (09) 364 4768

Aircraft Enhancement of VHF/UHF Signals ©

Doug McArthur VK3UM
30 Rollaway Rise, Chirnside Park, Vic. 3116

About two years ago, Gordon VK2ZAB and I commenced forward scatter tests on 144 MHz between Melbourne and Sydney. The path loss indicated a system gain to overcome -245dB was required. This was achievable with our combined stations. The VK2ZAB station consists of four bays of 9 element Yagis (18.5dBd), 400 watts output and a receiver sensitivity of better than 270 degrees K. The VK3UM station consisted of a slightly higher antenna gain (19.5dBd) and the same transmitter and receiver performance. Combining each station's performance with that of the encumbrant path loss, signals should be received at each end of the circuit approaching 3dB above the noise for better than 90 percent of the time. It was this figure that Gordon and I set out to prove. Probably the time and effort required to verify the text books would normally not be warranted. However as we were both "into the two metre scene" such an effort seemed worthy of the time. Besides the Sydney-Melbourne path had never been worked before on two metres!

Our first tests were very encouraging and although contacts were made the signal levels and reliability was just not as predicted. This however was more due to "what we thought we had" than what we actually were achieving in system performance. Finally when we both got our acts together, presto, signal levels were as predicted!

During our initial tests, we quickly realised that peaks of 30dB or more were evident for periods varying from a few minutes to tens of minutes. It was during one of these "good condition" periods (2130 UTC 1st May 1983 to be exact) that Ralph VK1RK broke on the frequency and almost took the cone out of my speaker! Expecting signals to Ralph to last, Gordon and I continued chatting but when we turned it over to Ralph — *Zilch! No Ralph!* About ten minutes later during another peak in signals to Gordon, Ralph again broke with S9 + signals. This time we did not leave him out on a limb and quickly exchanged reports etc. Without warning signals, which were steady with little or no QSB, started to drop rapidly and Ralph disappeared from the scene leaving Gordon and I communicating via forward scatter with signals about 3dB above the noise!

What caused this strange propagation? The times of the opening seemed to bear a relationship to an aircraft passing between us. A check the next morning positively established that two domestic services from Sydney to Melbourne were mid path at the very times of the enhanced propagation. Actually on hindsight (always a 20/20 vision), Gordon and I had observed this effect on many occasions but the "penny" only dropped when VK1RK appeared on the scene.

The rest of the story is history, but from our hundreds of "scheds" over the last eighteen months our observations may interest others who, under their own unique circumstances, may care to observe and utilise this novel form of communication medium.

It is most interesting to consider the path profile and relate the enhancement aspect that aircraft have on the Melbourne-Canberra path. Firstly the mountainous terrain between the two cities prevents direct communication except at rare times of exceptional trophospheric enhancement.

I have worked Canberra on 2 metres via Sporadic E back-scatter but, between normally equipped stations, ground wave propagation is most restricted by the mountains around Canberra. Knife edge bending is predominant on similar paths, however the angle presented at the Canberra end is most acute and to hear signal levels of those encountered and without any appreciable QSB, was somewhat of a surprise.

I have deliberately coined and used the word "enhancement" as aircraft reflection (off the body of the plane) is seemingly not the actual propagation or reflecting medium. Checking the surface area of the aircraft and noting the exposed area to the signal, the height and distance of the aircraft, combined with what would be the reflected signal level, did not tally with the signal levels received. They were simply too strong. Moreover it has been found that they can vary most markedly given certain weather conditions.

Well, what causes the effect? The aircraft are believed to be the cause and not the actual media of the enhanced propagation.

Candidly I am not sure of the mechanism but offer some possibilities that seem to relate to our observations.

1 Under the worst circumstances enhancement of minimal proportions are present on all transient aircraft and although the signal level increase is small it is always present. This effect will only be noticeable by those stations employing high power, high gain arrays and state-of-art (SOA) receiving systems for the signal increase may only be 3-6dB above the scatter path (Melbourne-Sydney). This effect can be related directly to reflections off the body of the aircraft itself and computes closely with the calculated figures.

2 Reflection caused by the condensation trails (con trails) left by aircraft flying above 30,000 feet.

3 Refraction caused by the air turbulence wake left by such aircraft. (Temperature heating effect or vortex turbulence.)

It is notable that although 2 and 3 are offered as explanations, normal aircraft radar returns indicate (other than the aircraft's reflection) the presence of this reflecting medium is seemingly not evident. This could be explained by the fact that such returns would comprise a back scattered signal or possibly insufficient attention has been given to this aspect. Another explanation could be related to the design of such systems which generally display only moving targets. Nevertheless back scatter does occur and will be related later in this article.

Some readers may wish to ponder the actual cause and pursue this aspect to a conclusion and accordingly there are many additional effects which may assist in the derivation of a more scientific answer.

Ignoring point 1, which would be of interest only to high powered or advanced stations, and complies with predictable data, the latter two (or more?) of extended communication range provide the most exciting possibility to stations of more moderate proportions. Signal levels can be very high indeed (over S9 on the Melbourne-Canberra path) and provide reliable and predictable contacts between the two cities. Predicting such enhancement can be as simple as obtaining domestic air time-tables, however as regular air travellers will know, they sometimes only provide a guide! Fortunately there are simpler and more accurate ways.

Aircraft en route report to ground stations remote linked back to the cities via UHF/SHF bearers. Simple sums will show a line of sight path exists from an aircraft midpath between Sydney and Melbourne back to both cities. Naturally you will not hear the ground station but the aircraft provide saturation signal levels.

It is customary for all flights to report their position at designated intervals and in particular the Sydney to Melbourne aircraft use 128.4 MHz, when overflying Canberra. From this report your can ascertain from the call signs and some knowledge of air carrier information, the type of aircraft and more importantly derive just when the enhancement will commence. Experience, plus a little knowledge of aircraft and airspeed dictates that enhancement will commence about 10 minutes from that time on the Melbourne-Sydney path and 12 minutes later on the Melbourne-Canberra path. These figures relate to my location in Chirnside Park (35km east of Melbourne), VK2ZAB (10 minutes) and VK1BG (12 minutes). Significantly all aircraft do not precisely report their position at this point and variations can and do occur. It can be assumed that Air Traffic Control have all aircraft en-route visually on radar and it does not matter too much!!?? *However we can tell!!*

Another method is by observing what is proving to be a most excellent beacon and a prime example of the application of such a device. VK1RCC is located at Mount Majura, near Canberra and transmits FSK CW on 144.490 MHz at about 12-14 watts output to an omnidirectional horizontal polarised antenna. Not much power you may say, but it can be heard in Melbourne during each aircraft enhancement period. Take a listen to Melbourne stations and you will most likely become fascinated by the effect. Signals will appear from nothing, peak rapidly, hold steady, and disappear into the noise about seven minutes later. Signal levels can be anything from just above the noise floor to S9 on

occasions, but are always present.

Application of this beacon is most useful as it provides an indication that propagation exists (or is just about to become available) to Canberra stations depending upon their location. It does however herald the passing of propagation enhancement to Sydney.

The next interesting facet of this enhancement mode relates to the times signals are received at locations that may only be a few miles apart. Although thought to be strange at first, again one should then relate your own and the other station's location, with that of the aircraft. Naturally times will vary and because of the no signal to signal present aspect it will seemingly appear more dramatic. As an example, stations located in the Melbourne suburb of Frankston hear Sydney some two minutes prior to myself. However because of the flight path signals are present for a longer period at my location. Again one should consider the respective incident angles involved. With respect to the Melbourne-Canberra path Eddy VK1VP appears about one to one and a half minutes earlier than Ian VK1BG at my location. It is of interest to note that Eddy's signal from his SOA station never reaches the signal level of Ian's. This is explained by Eddy's location which at the time of best enhancement (critical angle) is blocked by Black Mountain. (6.5 degrees elevation equals -65dB additional loss on a horizon signal.)

Stations throughout Canberra "come and go" at predictable times commensurate with the angles involved. Thus this aspect may prove a little difficult to initially define for your particular location. However given you know each other's location and the flight path of the aircraft or can hear someone from the distant end, you can from this pretty closely predict when signals will be present at either station. At first you may feel despondent upon hearing a station in your city giving the distant station S9 when you are hearing zilch. Don't give up; assuming your system to be performing well you have either just missed or are about to hear the other guy! If you don't hear them well you have problem(s) to solve.

Back to the signal characteristics. As mentioned earlier I was initially surprised at the level and lack of QSB of Ralph's VK1RK signal. *Where was the characteristic aircraft flutter?* Again the penny dropped! The normal aircraft flutter is caused by the multipath effects of signals between the aircraft, ground, and other relevant reflecting objects. In this case the path is direct, and the received angle on the horizon. Consequently no multipath would be present. That explained that one!

It was not long before it became most apparent that the signal levels were not always strong. In fact levels vary up to 60dB under certain conditions. *Why?* It was this fact that (with continued observations) derived the possible explanations given in 2 and 3.

Ian VK1BG has been a most regular contributor and back-bone to our experiments. His unique location in Canberra provides midpath observations and co-ordination with Sydney. Moreover we can always liaise on 80 or 40 metres. Ian, given favourable weather conditions, can usually observe the aircraft first hand. The viewing of condensation trails provides a possible explanation to our varying signal levels. As a sideline to the saga, if he can actually see the aircraft we can predict to within 10 seconds when enhancement will commence. This you can see is most beneficial on the Melbourne-Sydney path where signals are less strong. Thus given this knowledge you are ready and prepared to go prior to the onset of enhancement.

Ground surface weather conditions naturally play little or no part on the received signal levels. It is what is going on above 30,000 feet that is determining the enhancement. Simply put, it is believed that, given stable conditions "upstairs" (viz winds are minimal and temperatures consistent) signals are higher and remain present for longer periods. Unstable conditions and jet stream effects diminish both these parameters. A simple check of the weather map gives some guidance to what may be expected. Close isobar lines between the cities in question invariably relate to lower enhanced conditions (time and level). It has been found that winter seems to provide better enhancement (on average) than summer, and evenings better than day and mornings. This is a subjective assumption related only to our operations over the past few years which may have to be qualified through a more scientific approach. It does however support the theories although it is a somewhat "chicken and egg" situation. The baseline is however from a practical sense the period of enhancement (for 144 MHz) can vary (for a single aircraft) from 2-7 minutes and is present for better than 95 percent of each aircraft pass.

I mentioned "for a single aircraft" in the previous paragraph and on this aspect we find additional benefits from our "bunched domestic time table" which, although most inconvenient to most travellers is helpful to us as amateurs. As you are aware our domestic airlines on the Sydney-Melbourne route run almost parallel services. In practice this provides two flights separated by about 8-15 minutes. This aspect does provide on many occasions continuous enhancement spanning 15 minutes or so. Throw in an International flight or two in a similar time bracket and you can see we have a propagation medium of practical proportions. Thus aircraft enhancement is not quite the "flash" propagation you may first believe.

The extra flights have a side effect. Now we get QSB! This results from multipath effects between the medium or body of the aircraft in transit. It varies from extremely rapid (making copy difficult) to extremely slow, and seemingly occurs when one aircraft is leaving the mid path area utilised for the enhancement path. It also relates to the speed and direction of the aircraft involved.

The flight path of the aircraft is of prime importance. Coincidentally, my location favours the Sydney-Melbourne route where I have a small incident angle. This is not a limitation to others off route. It has been proven that stations from Geelong to Frankston to Lilydale are all able to use this propagation medium. How far either side of the aircraft track this is possible (given the height of the aircraft and stations separation) has, as yet, to be accurately defined. Activity has not been great but hopefully others reading this article may become sufficiently interested to participate. What is known however, is that David VK3AUU in Drouin South, has worked Gordon VK2ZAB in Sydney. The enhanced period is short, but present at about 80 kms from the aircraft track.

What aircraft routes are useful? Well that's dependent upon the respective locations. In the Melbourne-Canberra-Sydney path, only south bound (out of Sydney) flights are practical. North bound flights (out of Melbourne) fly too far west to provide us with the direct mid path enhancement. Canberra flights are of course too low at the point enhancement.

The Sydney-Melbourne flights fly at altitudes of 31, 33, 35 thousand feet and in addition to height separation may be separated laterally. It is the most easterly path which suits us more. This has become more evident from our 432 MHz experiments to be discussed later in this article.

Obviously many factors come into play but armed with an aircraft route map, time table or VHF aircraft receiver, a hand calculator combined with a couple of suitably equipped stations you could really make a mess of the Ross Hull Contest!!

Aircraft size and type have a bearing on the received signal levels. From our observations and by use of the information given when the aircraft report their positions, we have been able to know just what we are "working off"! Naturally as would be expected the 747s and DC10s provide a higher level of enhancement. 737, 727 and aircraft of this type also provide excellent enhancement. What is somewhat interesting is that the smaller aircraft F28s etc (if flying high enough) provide similar levels. Don't get tricked on the smaller aircraft, they fly slower and naturally your predicted times will be different. Thus pure or turbo prop aircraft provide similar degrees of enhancement.

In November 1984 I dismantled my 144 MHz EME array and decided to put all my effort into 432 MHz. If you read Eric's VHF/UHF notes in this magazine you will be aware of results. Currently I run 16 bays of 16 element ATN yagis which provide just over 26dBd of antenna gain. Under terrestrial working I run 375 watts output (SSB) and the receiving system approaches 45 degrees K. With this background information the aircraft enhancement effects on this band will now be discussed.

Firstly, yes it does exist! Moreover it seems that the peak signal levels may be greater than 144 MHz, although insufficient data to confirm or deny this aspect is, as yet, to be determined.

Currently Gordon VK2ZAB is only running 10 watts to four Yagis and without a low noise preamplifier. Nevertheless we have had many two-way contacts. (The first Melbourne-Sydney 432 MHz.) Signals from me have peaked over S9 and Gordon himself has reached S9.

What we do find difficult between the two bands is the period available for communication and the signal differences between relative sites. In the first case it appears that only one half to two thirds of the enhancement period exists on 432 MHz. Secondly, the transit time of signals appearing (cross town in Canberra) is quite dramatic. Signals can be S9 at one location and inaudible a few miles distant.

I hasten to add that it is early days yet and when stations participating in our experiments improve their systems commensurate to 144 MHz, more definitive conclusions may be resolved.

Naturally as I employ a EME station capability of not too modest standards, allowances must be made in this regard. Advantages of lower sky noise and a greater realised receiver sensitivity offset or actually surpass that of 2 metres, but to discuss this and associated aspects is beyond the intent of this article. In theory my scatter signal in Sydney should surpass (by almost 6dB), that of my previous 2 metre signal, however currently the Sydney guys have as yet to reach this point. (Gordon VK2ZAB is working on it!!) Canberra stations, and in particular Ian VK1BG can copy me on scatter (CW) for greater than 90 percent of the time as evidenced from retransmissions on 80 metres. It is most useful for Ian to be able to copy (on SSB via forward scatter) for 75 percent of the time to be able to wait until signals peak (from enhancement) to S3, before responding.

I strongly believe that aircraft enhancement will support 1296 MHz and wonder just who will be the first to bridge the gap between Sydney and Melbourne on that band. Melbourne-Canberra should be a breeze!

To summarise, what can be expected? Firstly on two metres equipment wise. A well equipped station would, I consider, consist of say a single ATN 13LB type antenna (13.5dBd) fed with half inch heliax or Belden 9913 and 100 transmitter watts output power. Receiver

wise a preamplifier (preferably masthead mounted) with better than 1 dB NF (BF981 or better). Such a station, if located in Melbourne, will work a similar equipped station in Sydney and expect to hear on average signals between S2-S5. On occasions short periods of up to S9 will be achieved.

On the Melbourne-Canberra path signals will "blow your head off" at times and on average be better than S7. Accordingly you may relate this to lower powers and antenna gain. It is quite easy to work this path (Canberra) with 10 watts and a modest antenna.

Don't worry about elevating the array! Signal received angles are right on the horizon due to distances involved, and secondly beam in the direct straight line path.

Some other interesting effects that have come to our notice during our scheds has been the incidence of backscatter signals off the reflection medium. When enhancement is very strong Ian VK1BG receives backscattered signals from Gordon VK2ZAB. Normally Gordon is inaudible when beaming towards me (at VK1BGs QTH) and only on the very strongest of such enhancement (towards me) are signals of this nature heard. Conversely, Gordon can hear VK1BUC, when he is beaming my way.

Multi-propagation modes in association with aircraft enhancement have been noted. Gordon VK2ZAB runs schedules northwards from Sydney on weekends. Many VK4s in Brisbane and Bill VK4LC (Mt Tamborine) are worked. I try to monitor such schedules and relate the meteor "ping" rate from week to week. Generally speaking the VK4s always provide from 5-15 (less than 1 second) pings for each 5 minute period. When meteor showers are present this increases dramatically with some classic pings exceeding 15 seconds. It has come to my notice that on several occasions I have heard Bill VK4LC with a steady signal for periods of up to one and a half minutes. Not sporadic E nor a "beaut" meteor ping! My only explanation would be that of aircraft enhancement plus tropospheric enhancement. (The distance far exceeds that for an aircraft flying at normal heights!! or maybe we have discovered a very high flying aircraft??!!!)

Finally to conclude, mention must be made of operating techniques. This is not the medium to ragchew although those suitably equipped can make a fair fist of it! Thus, it requires short, precise overs if you want to succeed and more importantly for others waiting to participate. Nothing worse than someone hogging the channel and talking through an enhancement period. Treat your operating like working the RD contest. Generally speaking if you are new at the procedure, listen for a couple of weekends and chat afterwards with those involved. Note the times you hear and whom you hear. This can be related to others and especially to your own capability. For example: a Melbourne station hearing Gordon VK2ZAB on two metres and getting him at S2 should realise he is running 400 watts and it is most likely that your 50 watts would not be heard. (This may not be quite true as most "big mouths" have associated "excellent ears" and may make up for your deficiency.) Moreover nothing is worse than stations at both ends of the circuit chatting on the scheduled frequency complaining nothing is happening.

Many has been the time when I have listened to Sydney stations on 432 MHz chatting during the scheduled period, and Gordon reports the same of Melbourne stations on 144 MHz. What is required are very short transmitting sequences and unnecessary chatter. This aspect would be beneficial on the SSB calling frequency of 144.1 and 432.1 MHz!!! For this reason Gordon and I chose 144.2 and 432.2 MHz. At one stage we were forced to work split to avoid the smart "Alecs" but this is the last thing we all would wish.

Currently these are the operating times and frequencies:
144.200 MHz: Gordon VK2ZAB "co-ordinates" the Sydney end beaming Melbourne from 0803-0900 EST (2230-2300 UTC) each Saturday and Sunday morning. He calls for the first 30 seconds of each minute and listens the last 30 seconds when things are quiet.
432.200 MHz: I (VK3UM) "co-ordinate" the Melbourne end beaming Sydney during the same period above. I call and listen alternatively each 10 seconds and monitor 3.690 MHz prior, during and after the scheduled period. If 80 metres is poor, we utilise 7.293 MHz.

Just why did we pick this particular time? Well it was convenient but we know that current flights provide at least two domestic services and generally an International flight during this period. Fog at either airport and resultant closures can cause consternation at times!

I emphasise everybody is most welcome to join and would respectively suggest if the group gets too large (as often it does) to pair off to another frequency.

There you have it: "aircraft enhancement" as we have coined the phrase and hopefully this article will inspire others to give it a try and for those scientists out there to come up with a concrete explanation of the "mechanics".

Special acknowledgements include Ian VK1BG, Ralph VK1RK, Eddy VK1VP, Les VK1BUC, Col VK1AU, Glen VK1GL, Peter VK1ZQS, Gordon VK2ZAB, Brian VK2QP, Ron VK2DVZ, Dick VK2BDN, Trevor VK3KEG, Les VK3ZBJ, Lionel VK3NM and David VK3AUU. Apologies to any that have been inadvertently missed.

AR

JUNE'S BEST PHOTOGRAPH

The judges at Agfa-Gevaert selected the photographs on page 21 of the June magazine. Next month the winner of the Agfa prize will be announced.

TRY THIS

Arthur Sibley,
RMB 24, Cooper Road, Wamboin, NSW, 2620.

POWER SUPPLY AMMETER

I had much trouble looking for an ammeter for high current power supplies. This is what I settled on and it works quite well for general measurements.

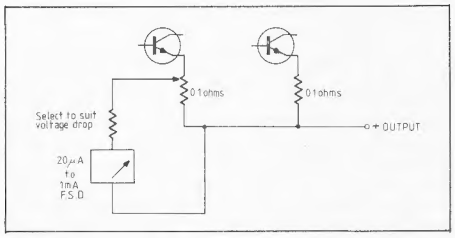


Figure 1: Circuit for the Ammeter. Note that only 2 transistors are shown but any number may be used.

Effectively the arrangement is a voltmeter reading a voltage drop across the transistor equalising resistor of any one of the parallel voltage regulating transistors, any type or make.

I used 2N3055s and have six in parallel. The resistor is 0./ohms and at 6amps the voltmeter has to measure full scale at .6V.

This corresponds to 30,000 ohms for a 20uA meter. As the internal resistance of the meter is 5,000 ohms, a 25,000 ohm resistor will give full scale for 6x6 = 36A.

I selected my resistor so the scale could have 40A full scale. The meter originally came from a tape recorder level meter — nothing sophisticated, but very useful.

AR

VHF COMMUNICATIONS MAGAZINE

Subscribers please note!!

Following the notice in May Amateur Radio, there have been some delays in the 1985 edition due to the lack of a translator.

Please be patient and any further developments will be published in AR.

ERRATUM

The April issue of AR carried a book review of the Confidential Frequency List which stated that the book could be obtained from AR advertisers such as GFS. This was incorrect. The book is available from AR advertiser Dick Smith (Catalogue No B-9602, cost $15.95), or as per Spotlight on SWLing for February 1985, page 37.

Apologies are offered for any inconvenience caused.

WIA 75th Anniversary News

LETTER TO WIA SECRETARY RE SPACE SHUTTLE FROM DAVID SUMNER K1ZZ OF ARRL

Tony England will be carrying two-metre FM and slow-scan TV equipment with him on the 51-F mission that is now slated for mid-July. Unfortunately, he will be limited to using the in-the-window antenna that was used by Owen Garriott, rather than an external antenna in the cargo bay. Also, his operating time will be extremely limited owing to other commitments.

We are passing along your request for a message of greetings to be sent from the Shuttle. The biggest problem is likely to be that Tony will not know, more than one orbit in advance, when he will be able to operate.

At this point I guess the best we can do is to suggest that WIA members equip themselves to receive FM (and preferably SSTV) on 145.55 MHz, and hope that things will fall into place for the mission.

It must be emphasised to members the difficulties with this type of operation — Good Listening.

AR

JULY 1985

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1 Dominion Day – Canada	2 Middle of the year	3	4 USA Independance Day	5 Alice Springs Show	6 Venezuela Phone Test
7 Venezuela Phone Test	8 School resumes VK4	9	10	11	12 National Aboriginals Day Tennant Creek Show	Colombian DX Test IARU Radiosport Championship International QRPp Test West Coast 180 SSB Test
Colombian DX Test French National Day IARU Radiosport Championship International QRPp Test West Coast 180 SSB Test	15	16	17	18	19 Katherine Show	20 1985 Seanet WW DX Test CQ WW VHF Test Jack Files Memorial Test Venezuela CW Test
1985 Seanet WW DX Test Belgium National Day CQ WW VHF Test First Man on Moon – 1969 Jack Files Memorial Test Venezuela CW Test	22 CQ WW VHF Test School resumes VK8 VK1 GM at 7.45pm	23 VK5 GM	24	25	26 Darwin Show	27 County Hunters Test
28 County Hunters Test	29 County Hunters Test	30	31			

AM-COMM ELECTRONICS

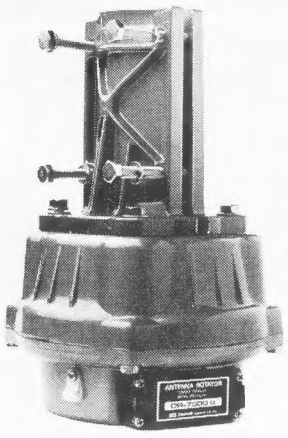
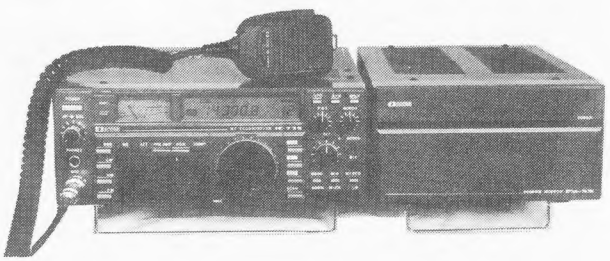
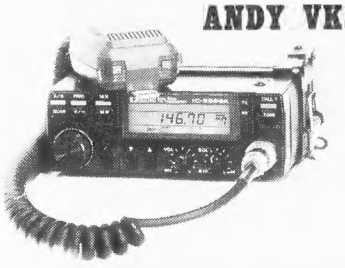
GROUND FLOOR
60 CANTERBURY ROAD, EAST CAMBERWELL, VIC. 3126.
Phone: (03) 836 7634

DISPLAY OPEN 9-5 PM MON-FRI; 10-12 SAT.

TALK TO THE EXPERTS
ABOUT YOUR AMATEUR RADIO NEEDS

- **Sales.** Top gear, competitive prices, full factory warranty.
- **Advice.** All amateurs and SWLs welcome, advice freely given.
- **Service.** Fully equipped workshop for all your service problems.

SEE
FRED VK3ZZN
ANDY VK3DPJ

COME AND SEE THE NEW ICOM IC-735 AND IC-3200 MODELS

YAESU KENWOOD ICOM

EQUIPMENT REVIEW

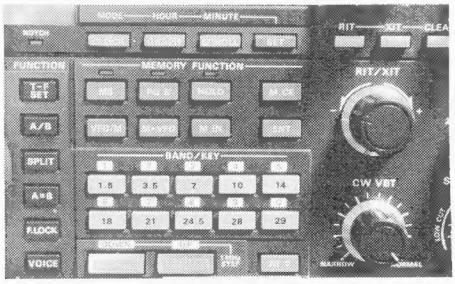
Ron Fisher VK3OM
3 Fairview Avenue, Glen Waverley, Vic. 3150

KENWOOD TS-940S ALL MODE HF TRANSCEIVER

The TS-940S is an updated version of the well known and respected TS-930S. The 930 became available around mid-1982 and quickly became a status symbol among amateurs.

However in many respects, the 930 was surpassed by the TS-430 released just a few months later. Perhaps the greatest draw back of the 930 was the inability of the memory system to store mode information. The 940S overcomes this and at the same time introduces many brand new and unique features.

At first glance, you might suspect that the 940 and the 930 are packaged in the same cabinet. There is certainly no doubt from their appearance that they are closely related. But in fact the 940S is both larger and heavier than the 930. Width is up from 374mm to 401mm, other dimensions remain the same, weight is up from 18.5kg to 20kg. Some of this increase in weight is accounted for in the automatic antenna tuner which now covers 160 metres, and in the improved cooling for the final which allows a longer duty cycle for RTTY. The most striking improvement in the 940 is in the tuning, memory and frequency selection areas. On the 930 this was limited to amateur band selection buttons, 1 MHz up/down selection and the eight position memory switching. All of this has been replaced with a multi function keyboard.

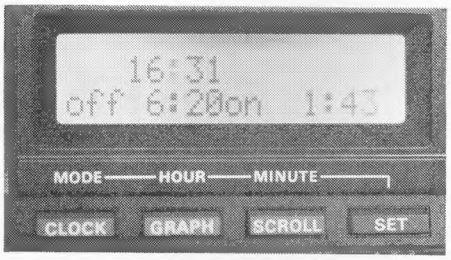


Keyboard.

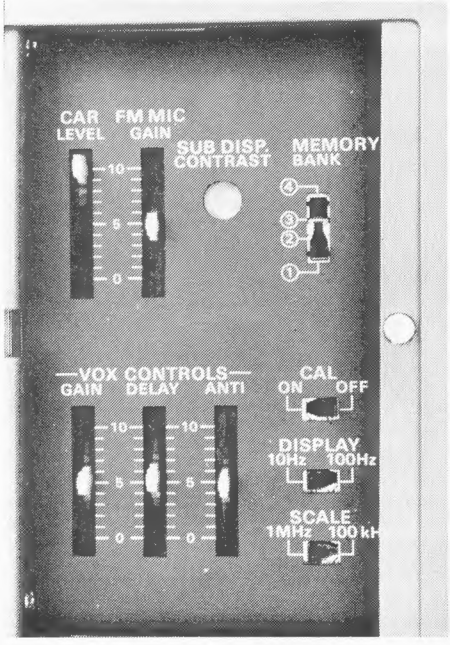
Let's look at this in some detail. Ten band/key buttons allow instant selection of each amateur band with two buttons for 10 metres at 28 and 30 MHz. When in the memory mode these same ten buttons select memories one through ten in any one of the selected four memory banks. There are now a total of forty memories.

The four memory banks are selected by a switch through the top hatch. Unfortunately the memories are not tunable. They can be shifted up to +/– 9.9 kHz with the RIT, but if a greater range is required, the memorised frequency must be transferred to VFO A or B which you then lose. Memory scanning works well with a 5 second hold on each memory as the scanning proceeds.

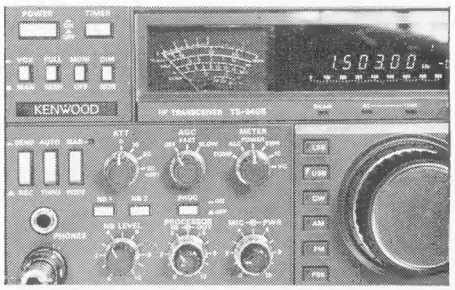
Finally, the same ten buttons can be used as a direct entry keyboard to provide direct access to any required frequency. 1 MHz up/down keys are also available.



Clock Display.

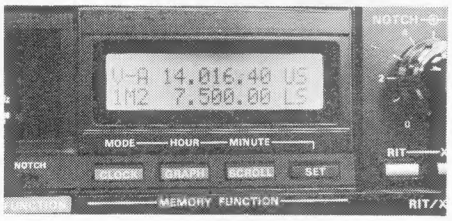


Controls within the Top Hatch.



Mode Selection Buttons.

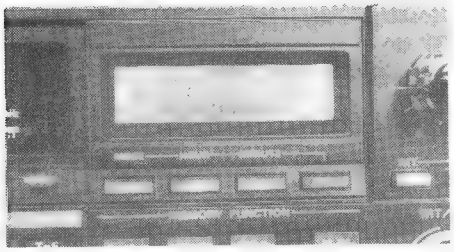
Six mode selection buttons to the left of the tuning control replace the old style rotary switch of the 930. As each mode is selected, a small indicator lights and the mode is signalled in Morse code — 'L' for LSB, 'U' for USB, etc. To the right of the VFO knob are five VFO controls and the voice frequency readout selection button. That is another of the new features of the 940. Along with the Morse code identifier this will make operating much easier for sight impaired amateurs. A voice readout is an optional extra. Eight memory controls are arranged above the keyboard,



Frequency Readout.

which allow for memory entry and recall, VFO to memory and memory to VFO transfer as well as memory scan.

Next is the Sub Display, simple name for an LCD display that imparts more information than anything seen before. Let's run through what it displays. A twenty four hour clock, on/off times for unattended switching of the transceiver mains power, frequency in the VFO not being used at the time, ie it displays VFO B if VFO A is in use. It displays, in turn, all the frequencies stored in memory and gives a graphical display of the status of the SSB slope tune and also the CW VBT. It indicates when the auto antenna tuner has been selected, when it is tuning, when it has completed tuning, and whether a match is possible or not. Selection of the various display functions is selected by the four buttons under the display except for the antenna tuner display which appears when the auto tuner is activated.



Slope Status.

SSB and CW tuning rate remains the same as the 930 with one knob revolution for 10 kHz shift but on AM and FM this is changed to one knob revolution for 100 kHz shift. I feel that this is too fast and that perhaps a 50 kHz rate might have been better.

It has been reported in some magazine previews (not AR) of the 940S that transmitter power output is 250 watts. However as we shall later see the output is around 100 watts and the INPUT is claimed to be 250 watts.

Antenna Readout.

Some of the other handy additions to the 940S include switching of the digital display to either 100 or 10 Hz resolution and the analogue slide rule frequency indicator under the digital display to either 1 MHz (where it was on the 930) or to 100 kHz.

Power Output Meter.

The power output meter, which is quite accurately calibrated in watts, now also indicates PEP output on SSB. I found the meter needed a bit more damping when reading PEP but at least this is a start.

Numerous facilities are available on the rear panel, although like the 930, they are a bit hard to get at. The IF output socket is now directly compatible with the SM-220 monitor scope and providing the 220 is fitted with a BS-8 adaptor the band display feature can be used.

On the cosmetic side of things, the S meter colour scheme has been changed. It now has a black background which I rather liked but a 930 owner, who tried the 940, preferred the light coloured meter on his rig.

As 930, the 940 has two cooling fans, one for the power supply and one for the transmitter's final amplifier. The power supply fan tended to operate quite a bit during receive-only operation. The noise produced was quite audible although not all that obtrusive. In fact I noticed more when it had switched off. The final amplifier fan was much quieter and only came on after several minutes of transmission.

The 940 RIT/XIT control deserves a mention. The offset required can be preset to any required amount up to +/−9.9 kHz by rotating the continuously variable control. Push the RIT button and there you are. Push the RIT button again and the receiver is back on the original frequency with the offset frequency still preset and available. Pushing the clear button resets the RIT offset to zero.

Rear panel facilities have been increased and now include two accessory sockets for a computer interface and for the connection of data communications.

CIRCUIT DESCRIPTION

The TS-940 is a triple conversion circuit for transmit and also for the FM receive mode. Other receive modes include one extra conversion down to 100 kHz which includes a most effective notch filter.

The conversion set is: first IF at 45.05 MHz, output from the synthesiser at 45.08 to 75.05 MHz which converts the incoming signal to 30 MHz for the first IF. Second IF is 8830 kHz, and it is at this frequency, common to most Kenwood HF equipment, where the main IF shaping filters are located. Third IF is 455 kHz. The transmitter balanced modulator is at this frequency and a separate 455 kHz IF strip comes off at this point for FM reception.

Output from the synthesiser is in 10 Hz steps for SSB and CW and 100 Hz steps for AM and FM operation. Tuning around on AM there were plenty of clicks when tuning across strong signals as the synthesiser changed frequency. In this respect the 940 is very much inferior to the 930. The variable bandwidth controls operate at the second IF frequency and employ two variable carrier oscillators at 8.83 and 8.375 MHz. The noise blanker also operates at this frequency and uses a four diode switch ahead of the main filters.

It is interesting to note that the specified selectivity of the 940S is rated at 2.4 kHz at −6 dB and 3.6 kHz at −60 dB as against 2.7 and 4.0 kHz for the 930S. In a side by side test there was no detection of any difference in the two transceivers.

The RF output from the solid state transmitter output stage is diode switched to allow the full break in CW operation.

TS-940S ON TEST

The following equipment was used to produce the test figures. A Yaesu YP-150 terminating watt meter, Drake R-4 through line watt meter, Kenwood SM 220 monitor scope, AWA F242A noise and distortion meter, Daven terminating audio output meter and Marconi TF995A/5 signal generator.

Frequency Stability

The stability of the 940 is most impressive. It was checked against VNG, WWV and several broadcast stations over long periods and under various ambient temperature conditions. It is really hard to be sure that the 940 drifts at all but if it does, the total would be under 20 Hz. If this type of performance does not satisfy, an optional high stability master oscillator is available which claims a long term stability of +/− x 10-6/year.

Power output

As mentioned earlier, some previews of the 940 have indicated that the power output has been increased to 250 watts. Not so, but the input is claimed to be 250 watts and the output is around 100 watts.

Power was measured under CW conditions with full drive, referenced to the PEP output as indicated on the monitor scope. For good measure a two tone test was carried out.

Band	CW output	PEP output from scope	Two tone output x 2 to give PEP
1.8MHz	127 W	130 W	110 W
3.5 MHz	127 W	130 W	110 W
7.0 MHz	127 W	130 W	110 W
10.1 MHz	126 W	130 W	110 W
14.0 MHz	124 W	135 W	105 W
18.0 MHz	124 W	130 W	105 W
21.0 MHz	124 W	130 W	105 W
24.5 MHz	123 W	125 W	105 W
28 5 MHz	123 W	125 W	100 W

While doing these tests, the power output meter calibration on the 940 was checked. With steady carrier, the 940 meter was 10 percent low compared to reference meters. Under PEP conditions it was hard to arrive at an accurate estimation due to the rather fast ballistics of the meter. Perhaps Kenwood might consider the addition of a hold circuit or even a simple increase of the meter decay time.

The scope pattern indicated a very clean output at all times even with large amounts of speech processing in use.

The power control allows the operator to reduce output in all modes to about 5 watts. This can be easily monitored with the power output setting of the 940 meter.

Subjective tests of the transmitted audio quality was carried out in the three available modes. SSB quality was rated as very good with an actual perceived improvement with the processor in use. Many critical amateurs have noted the distinctive quality of the TS-930. It's pleasing to report the 940 retains the same sound. AM quality was smooth and clean particularly with the optional MC-60A microphone in use. But the big surprise was the superb quality of the FM mode. Over a given path, the FM gave much better quality and signal to noise ratio than either AM or SSB. Why don't more amateurs use this mode on the wide open spaces of the 10 metre band?

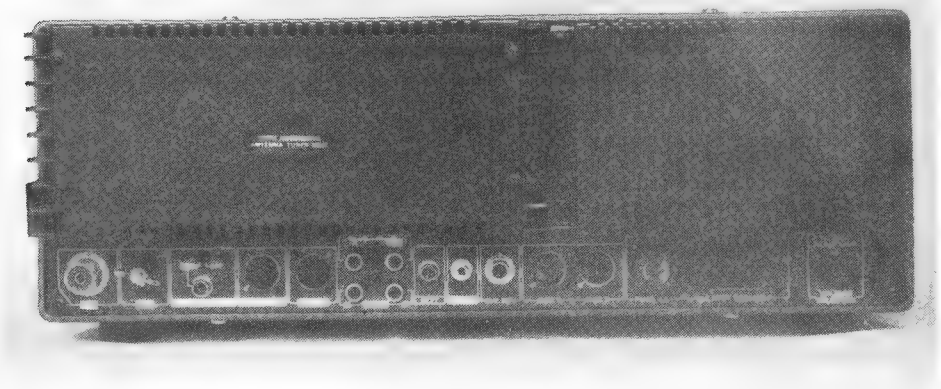
Receiver Tests

The extension speaker output was connected to the terminating audio power meter and the noise and distortion meter. An 8 ohm load was selected. Residual noise with the audio gain at zero was −55 dBm unweighted and −52 dBm weighted. This is a reasonable figure, better than many transceivers but well down on the best (the FT-102). Audio output power and distortion were:

Output Power	Distortion
.5 watts	1.6%
1.5 watts	1.6%
2.0 watts	3.5%
2.5 watts	13%

While these figures are reasonable and representative of modern amateur equipment, I often wonder why a transceiver of this class doesn't have 10 or 15 watts audio output. Surely the cost of producing 10 watts would be very little more than 2 watts but the improvement in recovered audio could be substantial.

Received audio response in LSB was checked by



Rear of the TS-940S.

tuning across the signal produced by the 940 internal crystal calibrator. The results were:

100Hz	200Hz	300Hz	400Hz	1kHz	1.5kHz
10	−2	.5	0	0	−1
2kHz	2.2kHz	2.5kHz	2.7kHz	3 0kHz	
−3	−4	−5	7	−26dB	

While this is very smooth, it shows that the carrier is set a little too close to the filter skirt. A slight adjustment would give a better HF response, although as shown above in the transmitter tests, this is not all that bad.

Frequency response was also checked in the AM reception mode.

100Hz	200Hz	350Hz	700Hz
−10dB	−4dB	0dB	0dB
1kHz	2kHz	3.5kHz	5kHz
0dB	3dB	−12dB	22dB

The fall off is surprising at the low frequency end, however feeding a good quality speaker the audio was clean and quite acceptable.

The action of the SSB slope tune controls were checked and should be referred to the overall response figures above.

SSB slopes tune, high. Control at centre (12 o'clock) point.

1kHz	1.5kHz	2.0kHz
0dB	1dB	20dB

Control full on (7 o'clock) point.

1kHz	1.25kHz
−13dB	−26dB

SSB slope tune, low. Control at centre (12 o'clock) point.

400Hz
20dB

Control full on (5 o'clock) point.

1.1kHz
−20dB

The notch filter was checked at four points through the audio range. It was able to produce a −30dB notch at 1kHz, 2kHz and 2.5kHz and a notch of −25dB at 500Hz. The notch was very sharp and its action had very little effect on the received audio quality. There was no overall drop of the received audio level as often happens with these devices. The notch filter can be used with equal effectiveness on all received modes.

The CW VBT (variable bandwidth tuning) operation was measured. No optional CW filter was fitted to the review transceiver and from the results obtained only the most dedicated CW operator would probably require one. Two are offered as options.

With the VBT at normal the band width was 2kHz at the −20dB points, but with it at narrow was reduced to 800Hz at 20dB points with an overall drop of 10dB in the actual audio output.

Receiver signal to noise ratio was next measured. This was checked at two frequencies.

At 14.2 MHz LSB.	1 uV	20dB
	.2 uV	10dB
	.1 uV	5dB
At 28.2 MHz LSB.	1 uV	22dB
	.2 uV	5dB
	.1 uV	2dB

FM quieting was measured at 14.2 MHz and turned in a remarkable 27dB. AGC action was also checked at 14.2 MHz. The signal generator output was slowly increased and the audio level monitored. From 1 to 10 uV there was a 7dB increase in output. From 10 uV to the maximum output of the generator the increase was less than .5dB. AGC decay time from S9 (100 uV) was 10 seconds with slow decay and 2 seconds with fast decay. The AGC was very smooth acting in all modes with no hint of pumping or clicking.

The S meter calibration was checked at 14.2 MHz with the following results:

S 0 — 2dB	S 6 — 4dB	9+20 — 8dB
S 2 — 2dB	S 7 — 4dB	9+30 — 9dB
S 3 — 6dB	S 8 — 3dB	9+40 — not checked
S 4 — 4dB	S 9 — 9dB	9+60 — not checked
S 5 — 5dB	9+10 - 8dB	

It took a signal level of 2 uV to reach S1 and S9 was calibrated at 100 uV. Apart from its reluctance to move off the stop with relatively weak signals, the action of the S meter was very good. You might find quite a few S0 readability 5 signals though.

The increase in the noise floor with an adjacent S9 signal was checked. With 3kHz separation the noise came up 1.5dB with the adjacent signal increased to S9+20dB the noise rose to 14dB. With 5kHz separation these figures decreased to 1 and 8.5dB respectively.

Tuning the receiver from 30 MHz down to 100kHz, a time consuming job, revealed a total of 22 birdies. Of these, only six reached an equivalent input of .2 uV. All of the others would be lost in the noise with an antena connected. Below 500kHz several gurgles were noted possibly eminating from the digital display. Again these were not audible with an antenna connected.

It was noted, during the transmitter tests, the SWR meter was indicating 1,3 : 1 when feeding a 50 ohm dummy load.

No tests were conducted to determine losses, if any, in the auto ATU. Most of the time it was not used during on air tests but a quick evaluation with a trap verticle well off its resonant frequency showed that a 3 : 1 SWR could be easily corrected.

INSTRUCTION BOOK

From an operational point of view, the sixty page instruction manual is well presented. There are three pages devoted to a description of the circuit and three more to basic adjustments and maintenance. The installation of the optional filters, auto antenna tuner and voice synthesiser is also covered.

With a transceiver of the complexity of the 940, operating instructions are of great importance. Each mode of operation is explained with a two page spread showing the operation of each control that is used with that particular mode. Several pages are devoted to memory entry, recall, scanning and direct keyboard entry. Also supplied with the review transceiver was the optional service manual. This consists of 108 pages of technical and service data. I am not sure if a copy of this is supplied with each TS-940. If not, I would recommend that a new owner should invest in one.

SUMMARY

The quickest way to sum up the 940S is to say that it has the lot. Of course if you require a mobile or portable transceiver then one of the smaller, lighter transceivers will perhaps suit better. For home station use it is hard to imagine a more complete rig or how Kenwood are going to improve on this transceiver in the future. Facilities offered are second to none and the overall performance is excellent in all respects.

The TS-940S used for this review was supplied by Trio-Kenwood (Australia) Pty Ltd and all enquiries regarding price and delivery should be addressed to them or one of their authorised local dealers.

EVALUATION AND ON AIR TEST OF THE KENWOOD TS-940S — Serial No 5100619

APPEARANCE

Packaging
*** Strong carton with foam inserts.*
Size
*** Large*
Weight
*** No lightweight (20kg) but everything self contained.*
External finish
**** Superb finish.*
Construction quality
*** Good quality boards and components. Accessibility seems fair.*

FRONT PANEL

Location of
Controls
**** With 64 separate controls, layout excellent.*
Size of knobs
*** All frequently used knobs bigger than average.*
Labelling
**** Clear labelling. Mode selection also identified in CW tone.*
Status indicators
*** Most functions well indicated.*

VFO ACTION

Tuning knob
**** Large and smooth action.*
Tuning rate
*** Well chosen for SSB and CW. Too fast for AM and FM.*
Digital readout
**** Would have to be the best available.*
VFO stability
**** Impossible to fault. High stability optional oscillator makes it better.*

RECEIVER OPERATION

Memories
*** 40 available with mode storage, but only 10 at one time. Memories not tunable.*
Slope tune
**** Both high and low end independently variable.*
Notch filter
**** One of the best. Sharp notch with little effect on received audio quality.*
CW VBT
**** Gives excellent CW selectivity without the use of special CW filters.*
CW pitch and tune
**** Selects required CW pitch and changes bandpass tuning to suit.*
Spurious responses
*** Quite a few throughout tuning range but all very low level.*
S Meter
*** Sluggish at low signal level. Otherwise good — see test section.*
AGC performance
**** Excellent response — see test section.*
Signal handling
**** No sign of overload.*
RIT/XIT
**** +/– 9.9kHz on both transmit or receive (selectable) separate offset readout. Main digital display also follows.*
Sensitivity
**** Excellent — see test section.*
RF attenuator
*** 10, 20 and 30dB-handy for checking S meter.*
RF gain
**** Smooth progressive action.*

NOISE BLANKER

Woodpecker
*** Better than most. Very effective when pulses are sharp and clean.*
Ignition noise
**** Cuts it dead.*
General electrical
Noise
*** Very good with most types of domestic noise.*

QUALITY OF RECEIVED AUDIO

Internal speaker
** Better than usual quality from upward facing speaker.*
External speaker
NA Matching speaker available as option. Quality very good on my usual station speaker.
Headphone output
*** Stereo phones compatible. Output level ideal.*
Cooling fan noise
** Power supply fan often runs during receive. Quite noticeable but not intrusive.*

TRANSMIT OPERATION

CW and PEP output
*** Output very flat from band to band. See test section.*
Audio response
**** Very smooth quality on all modes.*
ALC action
**** Most effective. No flat topping even when overdriven.*
Compressor
**** Really adds some punch to speech with no audible distortion.*
Metering
**** Compression, ALC, Power in watts, auto SWR, IC and VC (PA stage metering).*

Relay noise
***** None!*
VOX operation
***** Very smooth and of course no relay noise.*
CW operation
***** QSK (full break in) available. Should suit the most ardent CW operator.*
Cooling
**** Two fans, one for power supply, one for final amp. Runs cool at all times.*
MANUAL
(Owners handbook)
*** Operational information good. Not much else. Workshop manual recommended.*

Rating Code: Poor * Satisfactory **
Very Good *** Excellent ****

AR

Next month the Icom IC-735 All Mode HF Transceiver will be reviewed.

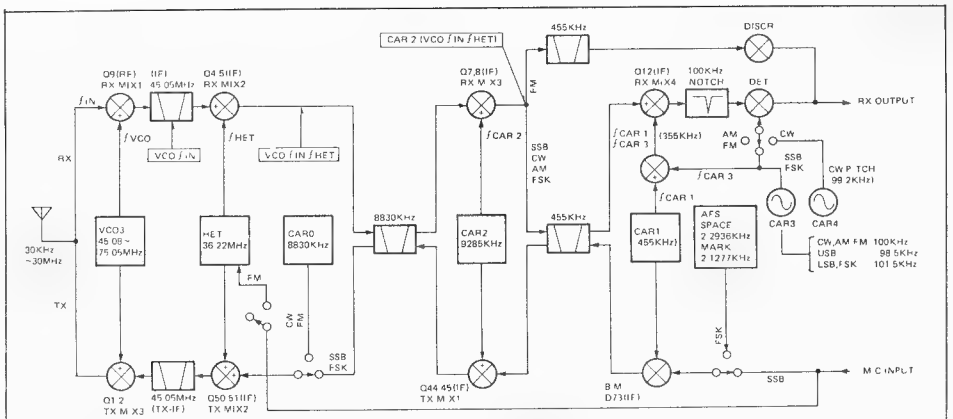


Fig. 1 TS-940S signal channel

75th Nostalgia

THE RIPPLE FROM THE SOUTH

Alf Chandler VK3LC

15 Point Avenue, Beaumaris, Vic. 3193.

The writer first became interested in wireless about 1920, when he was fifteen. He had been listening to Broadcast Station 3UZ on his cousin's wireless set which had been built by George Graham, a celebrity from Brunswick Street, Fitzroy, so the first project was to build a crystal set for myself to listen to the broadcasts. However, living in Beaumaris was a bit far for good reception on a crystal set so the next step was to build a one valve set.

By 1923 the equipment had advanced to a three valve set detector and two audios using 201A valves which I used to receive Madame Melba's opening of 3LO. My father ran a guest house which had a large hall and billiard room and it was in this hall that the wireless set became installed so the neighbours could come and listen to this new fangled set-up. Unfortunately, it was not realised that a hall full of people would dampen the reception and it was necessary to be quite near the set to hear anything.

In 1924, having left Scotch College and working in the guest house I decided it was time to learn more about wireless and perhaps go to sea as a wireless operator; I took a correspondence course in Wireless Telegraphy with the Marconi School of Wireless. A valve set was constructed to listen to VIM and ships in the bay on 600m. This set used three honeycomb coils inductively coupled on hinges, and 201A valves. A gramophone with records of Morse code was also attained which assisted the learning of the code.

After about eight months, a call was received to attend the school in Melbourne and complete the course, and in 1925 their exam was passed for 20WPM Morse, theory and practice.

For the practical exam we had a rotary gap spark transmitter in the basement at Queen Street, power is forgotten but there was a ventilator above into the footpath. (When the key was pressed, passersby would get the fright-of-their-lives!) There was a fault in this transmitter and I was asked to find it. What a fault! A piece of paper had been placed between the contacts of the key.

After the exam, the instructor lined the class up (about six or eight lads) and introduced us to a fellow who said, "I have a job for one of you, whoever steps out first gets the job." I was first out and started employment with Crystal Clear Radio on the corner of Bourke and Swanston Streets. After about nine months an offer was made to join a tramp steamer plying from Darwin to Broome as a Wireless Operator/Purser. Being only 19 at the time and not being too versed in the ways of the world, the offer was declined and I remained with Crystal Clear until their demise in 1927.

An experimental licence was applied for in 1926 with the call sign 3WH being allocated. I then became quite active with CW on the 30 and 80 metre bands. Trevor Evans 3NS initiated me into the "Rag Chewers Club" in 1927.

Upon joining the newly formed Victorian Radio Transmitters League (VRTL) in 1927 as Communications Manager I met with Jack Kling 3BJ, Harry Clift 3HC, Bill Gronow 3WG, Geoff Frew 3PM, Allan Reid 3JR, Chris Rainbow 3CR, Bill Martin 3MJ, Leo Paul 3LP, Bill Seivers 3CB, Charlie Whitelaw 3BH, Ron Jardine 3PR, Col Chirnside 3WQ and many others. This organisation, a branch of the Australian RTL with Mat O'Brien 4MM as President and Leo Feenaughty 4LJ as Secretary, was a break-away group of members who were disillusioned with the WIA at that time.

I joined the WIA in 1928 when, after a meeting between the secretaries of the WIA and ARTL, the two bodies merged with the WIA retaining its identity and the ARTL being totally absorbed. This meeting was ostensibly to present 3WH with a pennant as winner of an 80 metre contest.

After being a member of the WIA Airforce Reserve for some years, resigning in 1937, I enlisted in the RAAF in October 1940.

Training was done at Point Cook and after passing out parade posting was to Ballarat, No 1 WAGS (Wireless Air Gunners School) mustered as Wireless Operator Ground. After many promotions a posting came through to Townsville and then to Cairns in charge of signals at the Radar Zone Filter Station.

In October 1945 I was discharged from the RAAF and it was to be another ten years before amateur radio became an interest again. It was during a reunion of WAGS personnel when Fred Bail, Roth Jones and Peter Lemprierre were talking of what they were doing on 20 metres, that the bug bit again. An application was made for a call sign and VK3LC allotted, a call sign which is still heard quite frequently today.

FOOTNOTE:

From 1963-1970 Alf was a member of the WIA Publications Committee, firstly as Circulation Manager and subsequently as Magazine and Publications Manager.

In 1967 he became Intruder Watch Co-Ordinator for VK3, a position he held until 1970 when he became Federal Intruder Watch Co-Ordinator. In 1975 the IARU were in need of a co-ordinator and Alf filled the bill, a position he retained until 1982.

Awards presented to Alf in recognition for his services to amateur radio are:

1978 — the Ron Wilkinson Achievement Award 'In recognition of outstanding achievement in the field of Intruder Watch activities'.

1983 — a silver medallion 'For meritorious service to the Victorian Division of the WIA'.

1984 — a silver plaque which reads 'Our appreciation to AWH Chandler VK3LC for his long term (1975-1982) contribution to the Association as Regional IW Co-Ordinator. IARU Region 3 Association'.

AR

NOW AVAILABLE FROM YOUR DIVISION . . .
1985 Foreign Call Books . . .
$23.70 + post
1985 USA Call Books . . .
$24.40 + post

Andrews Communications Systems

WE WILL NOT BE UNDERSOLD ON YAESU, CALL NOW!

THE SUPERIOR YAESU

FT757GX Full 12 months warranty.

$1145 inc. MH1B8 mic.

- ★ General Coverage Receive 500 kHz-29.999 MHz
- ★ 100W RF output at 100% duty cycle. Compare!
- ★ SSB-CW-AM-FM modes, AM filter, all included!
- ★ IF shift-width filters included. Speech processor inc.
- ★ Dual VFOs, 8ch memory w/memory scan & search
- ★ Effective, adjustable "Woodpecker" noise blanker.

- **FC-757AT** .....$395 AUTO ANTENNA TUNER
- **FP-757 GX** .....$199 SWITCHING 20A SUPPLY
- **FP-700** .....$239 20A POWER SUPPLY
- **FC-700** .....$189 MANUAL ANTENNA TUNER

YAESU ALL-MODE VHF/UHF TRIBANDER

12 months warranty

FT-726 (R)

WITH 2M MODULE

$1299

INC. MH1B8 MIC.

6M MODULE $299

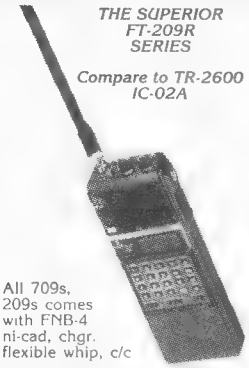
70cm MODULE $399

- Sensitivity 0.15μV on SSB. Shift & Width.
- USB-LSB-CW-FM modes & repeater rev
- 10W RF output on 2m
- 10 ch Memory Stores Mode, Frequency & Searches
- Full Cross-Band Duplex possible with Sat. unit, $169 & module
- RM Speech Processor, AC/DC. DC cable $14.

Save hundreds of dollars!!!

THE SUPERIOR FT-209R SERIES

Compare to TR-2600 IC-02A



All 709s, 209s comes with FNB-4 ni-cad, chgr. flexible whip, c/c

★ CLEARANCE SPECIAL ON YAESU

FT-208R 2m HANDIE $299

YAESU FT-709R UHF FM 4W $449

YAESU FT-270R/RH 45W 2m FM available.

YAESU FT-2700R dual bander $845

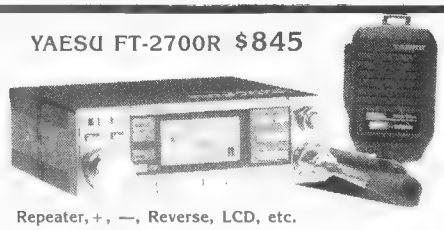
YAESU FT-703R UHF FM available.

YAESU FT-209R, with FNB-4, 2m FM, 3.7W Handie transceiver $399

YAESU FT-209 RH, with FNB-4, 2m FM 5W Handie transceiver $429

Full 12 months warranty on our YAESU, so why pay more elsewhere?

YAESU FT-2700R $845



12 months warranty

DUAL-BANDER

144 & 430 MHz Full duplex cross-band operation, 10 ch memory, PMS, 3/25W RF output, 0.2μV sensitivity.

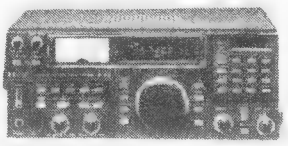
Repeater, +, —, Reverse, LCD, etc.

BUY YOUR YAESU FROM THE TRUSTED EXPERTS.

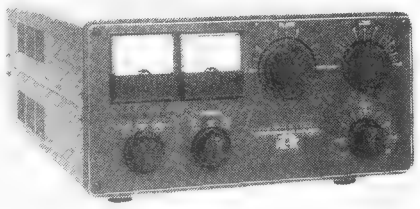
ICOM IC-R71 COMMUNICATIONS RECEIVER

ONLY ... **$950**

Professional quality HF communications receiver covers 2~30 MHz. AC/DC.



32 ch memory, scanning, searching, SSB-AM-CW, PBT.



- **2x4x150 As**
- **160-10m ALL NEW HL-1K**

HF 1kW Linear Amplifier

$975

In stock now.

Factory-direct importer of excellent T.H.P. Linears.

- ★ HL-120U 10W-120W, GaAsFET UHF linear $499
- ★ HL-60U 10W-60W, GaAsFET, UHF Linear $299
- ★ HL-160V 3/10W-160W, FET pre-amp, 2 mtrs $479
- ★ HL-160V25 25W-160W, FET pre-amp, 2 mtrs $419
- ★ HL-110V 3/10W-120W, FET pre-amp, 2 mtrs $339
- ★ HL-85V 10W-80W, GaAsFET rx, 2m Linear $249
- ★ HL-62V 10W-60W, GaAsFET pre-amp, 2m Linear $179
- ★ HL-35V 3-30W, GaAsFET pre-amp, 2m Linear $119
- ★ HL-86V 10W-80W, FET pre-amp, 6m Linear $229
- ★ HL-200E 10W-200W, 3-30MHz Linear $229

CALL (02) 349 5792 or 344 7880 NOW!

SHOP 7, GARDEN ST, MAROUBRA JUNCTION, SYDNEY NSW

THE MAIL ORDER SPECIALISTS.

Write to: PO BOX 33, KENSINGTON, NSW 2033.

Andrews Communications Systems

NEW YAESU ALL MODE SCANNER RECEIVES 60-905 MHz

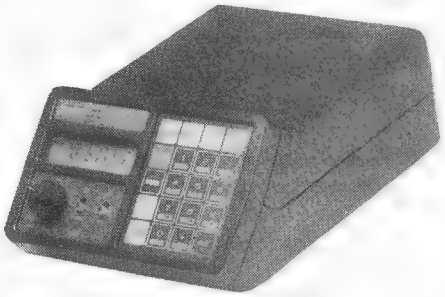
★ Continuous coverage receive from 60 to 905 MHz. Triple conversion design.
★ USB, LSB, FM-narrow, FM-wide, AM-narrow, AM-wide modes. Sensitivity 0.5μV FMN, 12dB SINAD
★ 100 ch memory with search and scan functions
★ Lithium memory battery. SSB receive to 460 MHz.

NOW IN STOCK.

FRG-965
THE PRICE
$679
12 months warranty.
WHY PAY MORE?

AR2001 . . . $539

DON'T PAY MORE ELSEWHERE!
Full 90 day warranty.



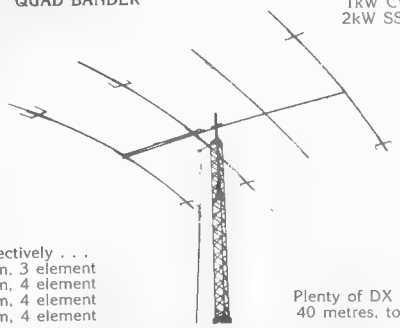
★ Professional Scanning Receiver covers 25-550 MHz continuously
★ Receives wide-FM, narrow-FM & AM modes
★ Sensitivity 1μV wide-FM, 0.3μV narrow-FM for 12dB SINAD
★ Unique programmable mode on every channel
★ 20 channel memory, up/down search lockout, delay, priority, etc.
★ Programmable 5kHz, 12.5kHz, or 25kHz channel steps.

AUSTRALIA'S SCANNER SPECIALISTS

TET HB-443 DX

"QUAD BANDER"

$499
Last Few.
1kW CW
2kW SSB



Effectively . . .
40m, 3 element
20m, 4 element
15m, 4 element
10m, 4 element

Plenty of DX on 40 metres, too!

RF AEROSPACE HIGH QUALITY BEAMS

70cm BAND, 4el grid reflector, folded dipole, driven element. Yagi beams; 11el on 1.5m boom $89, 18el on 3m boom $129.
2m BAND, 4el grid reflector, folded dipole, driven element, Yagi beams; 5el on 1.8m boom $89, 8el on 3.7m boom $129. Also, 2m 5el Yagi on 1.8m boom $59, 2m 8el Yagi on 3.7m boom $79, 6m 4el Yagi on 3.7m boom $79, 10m Yagis 3-8els, all gamma matched.

CHIRNSIDE ANTENNAE

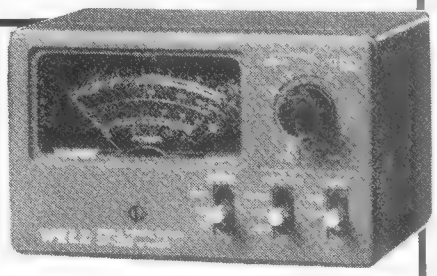
CA-33 tribander on 4m boom, 2kW rated, $309. 5el CA-35DX on 6m boom $385, 2kW rated, CA-555 80-10m Vertical $139, Helicals $30/$35.

KENWOOD TS-430S ... $1199

Full 12 months warranty. Why pay more?

(optional AM filter, FM) General coverage rx., HF SSB transceiver 160-10mtrs tx with 150 kHz-30 MHz rx, 8 ch memory etc. Inc. MC-42S mic.

NEW WELZ METERS



- **SP-220 200W** $99
  1.8-200 MHz, 2-20-200W.
- **SP-420 200W** ...$119
  140-525 MHz, 4-20-200W.
- **SP-122 2kW** $139
  1.6-60 MHz, 20-200-2,000W.

● Accuracy ±5% (F.S.D.) ● PEP and average power. (Dual meter types also available)

STOP PRESS! Latest Tokyo Hy-Power linears now in stock. HL-30U 2W-30W UHF, w/GaAs FET $169, HL-66V 10W-60W 6m w/GaAs FET $179.

KENPRO KR-400 medium duty rotator complete with top & bottom mast clamps $169
KURANISHI RW-151D 1.8-500 MHz, 5-25-150W dummy load with "N" socket $189
Also, we have a traded FRG-7700 w/memory $429

CALL (02) 349 5792 or 344 7880 NOW!

SHOP 7, GARDEN ST, MAROUBRA JUNCTION, SYDNEY NSW

THE MAIL ORDER SPECIALISTS.

Write to: P.O. BOX 33, KENSINGTON, NSW 2033

1985 FEDERAL CONVENTION

The 49th Annual WIA Convention was held in Melbourne from the 26th to 28th April 1985. Federal Councillors and Alternate Federal Councillors from all Divisions attended. Observers were present from VK3 and VK5. All members of the Executive were in attendance, along with several Federal Co-ordinators and members of the Federal Technical Advisory Committee.

The Executive, elected to serve for 1985, is as follows:

President *David Wardlaw VK3ADW*
Alan Foxcroft VK3AE
Earl Russell VK3BER
Peter Wolfenden VK3KAU
Michael Owen VK3KI
Ron Henderson VK1RH
Ross Burstal VK3CRB
Jack O'Shannassy VK3SP
Bill Rice VK3ABP
Gordon Bracewell VK3XX.

The President, David Wardlaw, opened the Convention by welcoming the delegates and asking the Convention to stand for one minutes silence in memory of Peter Dodd VK3CIF, the first full-time Secretary/Manager of the Institute.

The Convention then moved on to the Reports of Federal Officers (some 17), the President's Report is reproduced later in this article. Other reports of note were: the Report of the IARU Officers which dealt with the continuing problems of the IARU Constitution and 10MHz narrow band usage.

The Convention endorsed the Constitutional amendment proposals to be discussed further with the ZL IARU representative at the NZART Conference. The conflicting needs of the 10MHz band plan were discussed, the value of voice modes, in our geographical isolation was acknowledged, but the International recommendations should be observed. The Convention agreed to qualify the Australian band plan in the respect that narrow band usage be adopted for communications beyond the Australian call areas.

The Treasurer's Report gave an overview of operations in conjunction with the Auditors figures and some form of indexing the reserves of the Institute was agreed.

The Editor made the delegates aware that Amateur Radio was being produced within the budget predicted and there was spirited discussion on the subject of the type size. The questionnaire, which members received with this year's subscription renewal, had proved a useful exercise. Members of the Publications Committee were still to study the final Report.

After discussion of the reports, the Convention moved to agenda items:

Minor amendments to the Articles and Memorandum of Association of the Federal body were discussed and agreed unanimously. These changes are before the Corporate Affairs Office (Victoria) for agreement.

The rationalisation of the VK0 and VK9 call areas were discussed and it was agreed that the Executive should approach the Department of Communications at its next Joint Meeting. As examples of the proposal, VK0H . . would refer to Heard Island and VK9X . . would refer to Christmas Island.

The WICEN calling frequencies as published in Amateur Radio were adopted.

A proposal to remove the age limit on licences was discussed and it was agreed that representations to the Administration should be made that licences be issued in respect of ability to pass the required examination.

The position of HF beacons was debated and the IARU representatives given guidance to take the IARU Region 111 Conference in November.

It was agreed to create a Trust Fund for the training and assistance of potential amateurs in the developing islands of Region 111. The funding of this Trust to consist solely of donations/bequests from members.

The mechanism of band planning was discussed and agreed upon, this motion was to ensure that hasty decisions would not be made.

The Convention decided that the Divisional subscription table would no longer be printed in Amateur Radio or any other publication in the future, as the differential in subscriptions shown in the tables as printed, did not clarify the different services offered by each Division.

A motion to frequency restrict contests, as carried out by some other Societies, was discussed at length — the final agreement being that the Federal Contest Manager could restrict the frequencies used in contests at his discretion.

The Convention discussed the policy with regard to Packet Radio. It was agreed that the matter of Protocols should not be included in the policy statement when issued as it was felt that by recommending protocols experimentation could be inhibited. The policy statement should only address itself to Regulatory and Operational requirements. The Federal Technical Advisory Committee was tasked with raising a draft policy for discussion.

This is a very brief outline of some of the items discussed and voted upon, if you require more detail, please contact your Federal Councillor.

PRESIDENT'S REPORT — 1984/85

75TH ANNIVERSARY

The WIA, the world's oldest national amateur radio society, is 75 years old this year. Naturally the Executive has spent a reasonable amount of its time in ensuring that this Anniversary will be adequately celebrated.

A 75th Anniversary Co-ordinating Sub-committee, chaired by Jack O'Shannassy VK3SP, was created at the first meeting of the Executive for the year. Other members of the Committee are Peter Wolfenden VK3KAU, Jim Linton VK3PC, Earl Russell VK3BER, Greg Williams VK3BGW, Max Hull VK3ZS, John Hill VK3WZ and Reg Macey. Thanks must go to this Committee for all the hard work they have put in.

All Divisions are participating in Anniversary activities which have been well publicised in Amateur Radio.

Australia Post will be issuing a pre-stamped envelope in recognition of our 75 years of existence. Max Hull, a past Federal President, and the present Federal Historian, has been a major force in this achievement. I must admit that we had originally hoped for a commemorative stamp, but, as explained by Australia Post, we unfortunately did not meet the criteria for the issue of a special stamp.

In November there will be a special Anniversary Dinner — a very important guest being Dick Butler, the Secretary-General of the ITU.

A special Anniversary Call-sign, VK75A, has been authorised by the Department of Communications. The issue of this call-sign was a special and important gesture by the Department of Communications in recognition of our 75 years of existence.

The CW Contest will already have been held, and there is to be a National "Foxhunting" Contest.

COMPUTER "IN HOUSE"

In accordance with a resolution of the last Federal Convention, the WIA has purchased its own computer at a very competitive price, and like most other users of new computers, has run into the usual teething troubles. However at the time of writing this report it appears that all problems have been resolved. The computer is a Dual Processor 8/16 bit Cromemco System One.

RADIO COMMUNICATIONS ACT

The Radio Communications Act was passed in September 1983, but at the time of writing this Report, still has not been proclaimed. Naturally there will be a new set of regulations under this Act, and I am pleased to report that the WIA was offered every opportunity to comment on various drafts of the Radio Communications Bill and was successful in having most of its comments acted upon.

The value of the ability to be able to input material during the drafting of the Bill is almost impossible to estimate. We, in Australia, are lucky to have such good liaison with our DOC.

The length of time it has taken to proclaim the new Act has led to problems with the Amateur Operator's Handbook. Copies of the old book have run out and more are needed for exam candidates. DOC proposed that an interim update be produced to provide information for exam candidates. Even without the new Act there are a number of changes that arise from concessions gained by the WIA since the last revision of the Handbook in 1978. Also there are a number of changes due to WARC 79, not only in frequency bands but also in the classification of emissions. DOC put pressure on the WIA to produce comment on their draft of this interim handbook. With very little lead time the Divisions rose to the occasion and provided the CASPAR Committee with comment at very short notice.

The CASPAR Committee prepared a comment based on a limited life temporary Handbook. As many of the comments from the Divisions also contained matters that could well be applied to a complete revision of the Handbook, they were, at that stage, put to one side for future use. Time went by and no action on printing by the DOC. In the meantime CASPAR was charged with looking at the existing regulations under the Wireless Telegraphy Act and their relevance to existing practices and privileges of amateurs. Further discussions with DOC made it apparent that a much more detailed revision may take place and that the old book will be reprinted as a stop gap. CASPAR luckily has a deal of material on hand for further negotiations.

DUAL CHANNEL TV SOUND CH0. CH5A

The introduction of dual channel sound for TV broadcasting in Australia is a matter of grave concern to the WIA. This is because the occupied bandwidth will be greater than the 7MHz allocated channel width and TV channels are adjacent to our 2 VHF bands. The WIA has exchanged correspondence with the Minister and we feel his replies are not completely satisfactory, particularly with reference to prior consultation, and also the apparent new method of frequency planning on the 'give and take' principle. However, one item of good news is that there is a sunset on Ch5A albeit somewhere in the future.

The extension of the use of Ch0 by the SBS — although a problem for those 50MHz operators in South Australia and Tasmania, who had hoped for more liberal use of the low edge of the 50MHz band — gives the public more time to learn about UHF, while keeping other new TV stations from

obtaining access to Ch0. The Minister has pointed out the reception problems of Ch0 stations and says it is unsuitable for metropolitan areas. However, it still remains an Australian TV allocation. SBS will cease using Ch0 from December 1985.

The DOC was aware of our concern about the possibility of additional interference to amateur stations by TV stations using dual carrier sound on TV channels adjacent to our band, and requested a meeting to specifically discuss the subject.

It was said that offsets could and probably would be used which would prevent any increase in interference to amateurs from dual carrier sound as used on Ch5A and CH0.

ATV on 576MHz

With the increasing usage of the UHF band for TV the 576MHz temporary allocation to amateurs could be in jeopardy. A submission has been made to the Secretary of the DOC outlining a number of alternatives which would allow ATV continued access to this part of the spectrum. One proposition is that as its use is for ATV, the frequency need not necessarily be uniform throughout Australia. To date we know the submission is receiving attention within DOC.

IMPORT DUTY

The importation of amateur transceivers under by-law entry continues where the technical expert advisers to the Institute certify that the specific equipment will not transmit on other than amateur bands without substantial modification. This requires the certification of individual batches of equipment. In order to cover costs a fee is charged which, as was indicated in the original announcement of the scheme, is not waived. The scheme certainly poses problems for the individual amateur importer, but at the time the scheme was considered to be a compromise that would provide benefit to the greatest numbers.

When the Radio Communications Act is proclaimed it would appear that a new set of conditions would apply which should change the WIA's involvement.

PHONE PATCH

On the matter of phone patch Telecom would not waive the $2.00 per month charge, but there would be no timing charge for calls from amateurs.

EXAMINATIONS

The WIA and the DOC are closely co-operating in the examination area. We have been asked to give assistance in the preparation of material for examinations and are in a position to monitor standards. The DOC has expressed their gratitude as to our assistance, particularly as they wish to make it as easy as possible for candidates to sit for all parts of the examinations and thus require many more different papers to be available. Of course the overall responsibility for the exams in all aspects lies with the DOC.

The DOC has now formalised its arrangements for testing amateurs who so desire at higher Morse code speeds — a fee of $20.00 is to be charged and a formal letter accreditation will be provided.

JOINT MEETINGS

The WIA and DOC continues to hold their regular quarterly joint meetings, at these meetings agreement and clarification has been reached on many subjects. The DOC has agreed that there will be no difficulty in these meetings continuing in Melbourne even after the transfer of the remainder of central office staff to Canberra.

AMATEUR SATELLITES

During the year there will be an ITU World Administrative Conference to deal with planning the Geostationary Satellite Orbit. The Agenda for this conference covers all satellite services including the Amateur Satellite Service.

A CCIR Conference Preparatory Meeting produced a report which makes no suggestion to alter the conditions applying to the Amateur Satellite Service. There is remote possibility that the Amateur Satellite Service could be swept up in some broad Satellite regulations which are not appropriate to the Amateur Satellite Service. The WIA is in contact with members of the Australian delegation, and has indicated our concern as to this possibility. The IARU will be represented at the Conference.

STANDARDS

During the year the WIA became a contributing member of the Standards Association of Australia and is represented on Committee TE3 by Alan Foxcroft VK3AE, who chairs the working group on immunity. Dick Huey VK2AHU and Jim Lloyd VK1JL are also involved in helping the WIA on Standards Association matters in a number of areas, including the Standard involving non-ionising radiation.

PACKET RADIO

During the year the implications of packet radio have been studied by the FTAC with submissions having been received from a number of sources. (The DOC has also shown some interest in this aspect of amateur radio). The matter of protocols seems to have caused some controversy but this is not an important regulatory issue so much as an internal amateur issue. To date the approach is to leave as much self regulation as possible within the understood bases and purposes of the amateur service. No doubt much more will be heard on the subject in the future.

THIRD PARTY TRAFFIC

The Institute has requested that DOC conclude third party agreements with at least the same countries that have agreements with Canada and USA. The replies received so far have not been very helpful.

AMATEUR ADVISORY COMMITTEES

On studying the WIA submission on Amateur Advisory Committees, the DOC replied to us in the following manner:

While the Department recognises the valuable contribution made by AACs to the Amateur Service since their inception, it has been decided that the rigid committee structure should be discounted and replaced with informal meetings. Noting, however, the differing views within the Institute on AACs, the format and timing of these informal meetings will be left open to negotiation between State Managers and the Institute's Divisional representatives. It is considered that this flexible arrangement should cater for individual State requirements and continue to provide a valuable forum for liaison between the amateur fraternity and the Department.

IARU

The matter of an international amateur licence and reciprocal licensing will be the subjects for WIA submissions to the IARU Region 3 Conference in Auckland this year.

At a meeting of the Executive a presentation was made to Alf Chandler VK3LC, on behalf of the IARU Region 3 Association in recognition of his work as Region 3 Intruder Watch Co-ordinator for many years.

The WIA has been invited to attend the NZART Conference in Christchurch this year. This is in accordance with an arrangement made some years ago where one year the NZART would be represented at the WIA Federal Convention and the next year the WIA would attend the NZART Conference and so on. These reciprocal visits have proved to be very fruitful. This year there is the very important issue of amendments to the new IARU Constitution to be discussed. The WIA and the NZART hold similar views on many aspects and a unified approach could vastly help to put these matters across with a great deal more strength.

At the IARU Conference at the end of the year, there are a number of matters, apart from the Constitution, which will be the subject of Agenda items from the WIA. Many of these matters arise out of Federal Council resolutions.

The WIA received a copy of a notice of proposed Rule making by the FCC (USA) which concerned the assignment of a fequency between 7.100 and 7.300MHz for a shortwave broadcasting station on Guam Island, which is administered by USA but is within ITU Region 3 and therefore could have an allocation within this band unlike the rest of the stations administered by the FCC which are in Region 2. In Region 2, 7.100-7.300MHz is an amateur band, not a broadcast band. While understanding the facts of regional allocations the WIA corresponded with the ARRL expressing our worries. A reply from the ARRL has let us know that they have submitted an objection to this Notice of Rule Making. To date the results are unknown.

SPECIAL LEGACY

A legacy of $500 was received from the Estate of the late W Otty. In order that this is not lost in general funds, this legacy will be used to update our promotional material.

DEATH OF PETER DODD

In early March this year Peter Dodd VK3CIF, our first Secretary-Manager, passed away. In his 12 years of tireless service to the WIA Peter was intimately involved in many advances made by the WIA during the period. This year Peter volunteered to assist Max Hull with the preparation of Historic material for the 75th Anniversary. Unfortunately his deteriorating health forced him to relinquish the job.

DUTIES

As Bill Rice VK3ABP is now Editor of Amateur Radio, he felt he could no longer act as Chairman of FTAC, and Peter Gamble VK3YRP has taken over the position.

Gordon Bracewell VK3XX was appointed Chairman of the CASPAR Committee last year. His Committee has been working on the Amateur Operator's Handbook and also the regulations under the Act.

It is with sadness I report the death of our Federal Awards Manager, Hugh Spence VK6FS. Bill Hempel VK4LC has taken over the job.

Thanks to Fred Robertson-Mudie VK1MM for all the work he is doing for the Executive.

This year we have a new Contest Manager, Ian Hunt VK5QX a well-known Contester and past President and Federal Councillor of the VK5 Division, I thank Ian for taking on this difficult job. In his report, Ian is putting a number of matters to the Federal Council. A postal motion on several contest matters was deferred until the Convention as Article 44 of the Constitution was invoked.

For the first time in the history of the WIA a member of the Executive, Ron Henderson VK1RH lives interstate — this was possible because Ron's work brought him to Melbourne regularly. Ron is also the Federal WICEN Co-ordinator, and took on the task of updating the WIA policy book and has produced an updated listing of WIA policies.

Early this year we lost a hard worker when Tony Tregale VK3QQ resigned from the position of EMC Co-ordinator and as a member of the Executive. Tony has extended a great deal of effort in providing the EMC service for the WIA and our sincere thanks go to him for this.

Alan Foxcroft VK3AE Federal Vice-Chairman, represents the WIA at the SAA.

Jack O'Shannassy VK3SP and Peter Wolfenden VK3KAU have been very busy on the 75th Anniversary Committee.

Earl Russell VK3BER is very much involved with the WIA Computer and office liaison.

Ross Burstal VK3CRB our new treasurer, has capably filled this position vacated by Courtney Scott VK3BNG.

Michael Owen VK3KI is joint IARU Liaison Officer and provides valuable help on constitutional, legal and administrative matters. He is also a director of the IARU Region 3 Association.

Our Intruder Watch Co-ordinator, Bill Martin VK2COP has had some success this year.

In other fields:

Greg Williams VK3BGW, Contest Manager.

Neil Penfold VK6NE, Federal QSL Manager.

Fred Robertson-Mudie VK1MM, Federal RTTY Co-ordinator.

Max Hull VK3ZS, Federal Historian.

John Ingham VK5KG, Federal Video-tape Co-ordinator.

Brenda Edmonds VK3KT, Federal Education Co-ordinator.

John Stevens VK4AFS, Federal Asert Co-ordinator.

Graham Ratcliff VK5AGR, Federal AMSAT Co-ordinator.

Bill Roper VK3ARZ and Ron Fisher VK3OM continue to provide that valuable service, the Federal Broadcast Tapes.

I would like to pay tribute to our Secretary-Manager, Reg Macey and his staff:

John Hill VK3WZ, Advertising Manager (part time).

Mrs Ann McCurdy (part time).

Mrs Helen Wageningin (part time).

OFFICE

This has been a hard year in the office with the acquisition of our own computer, which has necessitated considerable re-arrangement of the office and procedures. Those visiting will appreciate the improvement.

Reg has been a tower of strength to me and I hope you all appreciate the hard work he puts into the job. Reg is the only full time officer, the other staff are employed on a part time basis.

The Federal office has continued to provide support to myself and the Executive and through them to the Divisions and membership as a whole. During the year the Secretary has made further changes to the physical layout of the office as well as giving it a much needed coat of paint. This has given the staff a more amenable working atmosphere as well as providing a better environment for Executive and sub-committee meetings. Some changes were necessitated because of the introduction of the new computer and associated hardware. All office equipment likely to produce distracting noise is now grouped at one end of the office.

Despite the re-arrangement within the office it is still overcrowded and lacking storage space. This is becoming a serious problem and one to which the Executive must address itself in the near future.

The general workload on the office is steadily increasing, in part because of the organisation involved with the 75th Anniversary activities. Much of this extra workload has had to be handled by the Secretary himself, partly because of its nature but mainly because the other office staff are fully occupied with their own regular duties. There is far more work than one person should be expected to handle even though the Secretary regularly writes up minutes of meetings in his own time. The Executive has been able to provide some voluntary assistance to the office to alleviate the necessity to employ temporary staff.

It is anticipated that when the computer system is fully operational this situation will be eased.

Betken Productions continued to contribute to the high standard of "Amateur Radio" this year and by diligent negotiations enabled us to hold our costs down in a number of areas.

It is disappointing to note that there was a slight reduction in the number of members last year. I hope that in this our 75th year we will have a significant increase.

In closing this report I would like to thank all those of you who provided me with such great assistance throughout the year.

DAVID WARDLAW VK3ADW,
FEDERAL PRESIDENT

MEMBERSHIP STATISTICS

All statistics are to 31st December 1984 (previous year in brackets). DOC statistics (as supplied to WIA) refer to licences issued, where WIA statistics refer to individual amateurs.

Table 1

	Total licences DOC	WIA licences	% members to total licences	Other WIA members	Total WIA members
VK1	309(321)	215(197)	69	17	232
VK2	4709(4582)	2195(2194)	47	98	2293
VK3	4444(4447)	2206(2106)	50	191	2397
VK4	2502(2402)	1281(1284)	51	46	1327
VK5	1884(1875)	1032(1047)	55	74	1106
VK6	1334(1291)	714(689)	53	37	751
VK7	562(534)	317(322)	56	12	329
Totals	**15744(15452)**	**7960(7743)**	**50**	**521**	**8435**

Table 2

Percentage increase/decrease (31/12/84 compared with 31/12/83.

	DOC licences %	WIA licences %	Total WIA members %
VKI	−1	+1	+3
VK2	+1	—	−2
VK3	+1	+1	—
VK4	—	—	−3
VK5	+1	−1	−3
VK6	+1	+1	—
VK7	+1	−1	−2
Totals	**+2**	**+1**	**−2**

Table 3

DOC Licences by grade 31/12/83 to 31/12/84.

	Full	Limited	Novice	Combined	Totals
VK1	182(179)	57(61)	51(59)	19(22)	309(267)
VK2	2622(2510)	831(799)	970(1023)	286(250)	4709(4582)
VK3	2329(2281)	1012(1015)	810(882)	293(269)	4444(4447)
VK4	1332(1255)	331(323)	617(631)	222(193)	2502(2402)
VK5	1062(1029)	292(291)	397(428)	133(127)	1884(1875)
VK6	821(796)	200(182)	227(240)	86(73)	1334(1291)
VK7	328(320)	104(102)	94(82)	36(30)	562(534)
Total	**8676(8370)**	**2827(2773)**	**3166(3345)**	**1075(964)**	**15744(15398)**

Table 4

WIA members by Grade.

	F	C	A	T	G	S	X	L	Total
VK1	189	9	17	1	3	7	3	3	232
VK2	971	790	98	65	308	26	28	7	2293
VK3	1272	506	191	49	270	50	39	20	2397
VK4	505	533	46	39	147	11	39	7	1327
VK5	564	267	74	23	13	16	26	7	1106
VK6	399	178	37	21	7	11	25	6	751
VK7	153	96	12	9	4	12	2	4	329
Total	**4053**	**2379**	**475**	**207**	**972**	**133**	**162**	**54**	**8435**

Note: Membership Grades:
F = Full, C = Country, A = Associate, T = Town, G = Pensioner, S = Student, X = Family and L = Life Membership.

APPENDIX 2

Attendance at executive meetings from 17th May 1984 to 18th April 1985 inclusive.

	Attended	Maximum No. Possible
Mr D Wardlaw	13	13
Mr A Foxcroft	13	13
Mr E Russell	11	13
Mr R Burstal	10	13
Mr W Rice	13	13
Mr T Tregale	6	8
Mr J O'Shannassy	11	13
Mr P Wolfenden	10	13
Mr M Owen	7	13
Mr R Henderson	6	13
ALSO ATTENDED:		
Mr R Macey	13	
Mr G Bracewell	5	
Mr P Gamble	8	
Mr B Bathols	2	
Mr C Scott	1	
Mr K Seddon	1	
Mr I Hunt	1	
Mr R. Hartkopf	1	
Mr J Hill	1	
Mrs B Edmonds	2	

DIRECTORS' REPORT

The Directors of the Wireless Institute of Australia submit their report with respect to the profit of the Institute for the financial year ended 31st December 1984 and the state of the Institute's affairs as at that date.

The Directors of the Institute in office at the date of this report are:

Wardlaw, D.A.	VK3ADW	President
Foxcroft, A.	VK3AE	Vice President
Burstal, R.A.	VK3CRB	Honorary Treasurer
Wolfenden, P.A.	VK3KAU	
Russell, E.R.	VK3BER	
O'Shannassy, J.A.	VK3SP	
Owen, M.J.	VK3KI	
Henderson, R.G.	VK1RH	
Rice, W.M.	VK3ABP	

The principal activities of the Wireless Institute of Australia are to:

(a) Represent generally the views of persons connected with amateur radio in the Commonwealth of Australia, its territories and dependencies.

(b) Promote the co-operation between the Divisions in the encouragement and development of amateur radio.

(c) Safeguard the interest of the Divisions and the members in relation to frequency allocations rights and privileges.

(d) Promote the development progress and advancement of amateur radio in all matters in relation to amateur radio in general.

The profit of the Institute for the year ended 31st December 1984 was $18,078 (1983 profit $13,946). No provision for income tax is required as the Institute is exempt from paying income tax under the provisions of the Income Tax Assessment Act.

No dividends have been paid or declared since the end of the previous financial year.

There were no material transfers to or from reserves or provisions during the financial year, other than those disclosed in the accounts.

In the opinion of the Directors the results of the Institute's operations were not substantially affected by any item, transaction or event of a material nature.

The Directors took reasonable steps before the profit and loss statement and balance sheet were made out to:

(a) Ascertain what action had been taken in relation to the writing off of bad debts, and adequate provision to be made for doubtful debts.

(b) Ascertain whether other current assets would realise, in the ordinary course of the business, their value as shown in the accounting records of the Institute, or to see that the unrealisable portion had been fully provided for if not already written off.

At the date of this report:

(a) The Directors are not aware of any circumstances which would render the amount written off for bad debts or the amount of the provision for doubtful debts inadequate to any substantial extent.

(b) The Directors are not aware of any circumstances which would render the values attributed to current assets in the accounts misleading.

(c) There does not exist any charge on the assets of the Institute which has arisen since the end of the financial year, and secures the liability of any other person.

(d) No contingent liability has arisen since the end of the financial year.

(e) The Directors are not aware of any circumstances not otherwise dealt with in this report or accounts which would render any amount stated in the accounts misleading.

No contingent or other liability has become enforceable, or is likely to become enforceable, within the period of 12 months after the end of the financial year which, in the opinion of the Directors will or may substantially affect the ability of the Institute to meet its obligations when they fall due.

In the interval between the end of the financial year and the date of this report no item, transaction or event of a material and unusual nature has arisen that is likely, in the opinion of the Councillors, to affect substantially the results of the Institute's operations for the next succeeding financial year.

No Director of the Institute has, since the end of the previous financial year, received or become entitled to receive a benefit.

The auditors, Messrs Hebard & Gunning, have informed the Institute that following upon an amalgamation of firms they are now practising in the name of Touche Ross & Co. The Directors have agreed to the continuation of their appointment in that name and accordingly the audit opinion for the current year has been issued in the name of Touche Ross & Co.

Signed: D.A. Wardlaw
R. Burstal

Caulfield,
12th April 1985

THE WIRELESS INSTITUTE OF AUSTRALIA
BALANCE SHEET
AS AT 31ST DECEMBER, 1984

MEMBERS FUNDS	*1984*	*1983*
Retained profits brought forward	$55109	$41163
Net profit for the year	18078	13946
	$73187	**$55109**

These funds are represented by:

CURRENT ASSETS			
Cash in hand		173	56
Trade debtors	14303		10162
Less provision for doubtful debts	(2000)		(2000)
		12303	8162
Prepayments		1146	0
Stock on hand Note 1(c)		5963	13634
		19585	**21852**
DEDUCT CURRENT LIABILITIES			
Bank overdraft		1442	(33814)
Trade creditors		2680	4141
Other creditors		2050	0
Provision for annual leave		4313	2083
Provision for amateur satellites		0	2972
Education grant		500	500
Subscriptions in advance Note 1(a)		87011	114034
Deposit VK4		0	500
Accounts payable to state Divisions		20803	41782
Ron Wilkinson Achievement Award		1733	1623
		120532	**133821**
WORKING CAPITAL DEFICIT carried forward		**$100947**	**$111969**
ADD			
FIXED ASSETS			
Office equipment — at cost	35577*		16284
Less accumulated depreciation	(10917)		(6854)
		24660	9430
Furniture & fittings — at cost	1213		0
Less accumulated depreciation	(96)		0
		1117	0
		25777	**9430**
INVESTMENTS — AT COST			
Australian Resources Development Bank		5800	5800
Short term deposits		142557	151848
		148357	157648
NET ASSETS		**$73187**	**$55109**

To be read in conjunction with the attached notes.
** Only two-thirds of total computer amount paid.*

THE WIRELESS INSTITUTE OF AUSTRALIA PROFIT AND LOSS STATEMEMT FOR THE YEAR ENDED 31ST DECEMBER 1984

		1984	***1983***
		$	$
OPERATING PROFIT BEFORE INCOME TAX (Note 2)		18,078	13,946
After charging/ (crediting)			
Auditors remuneration — for auditing the accounts		1,600	—
— other services	—	1,150	—
(No other benefits were received by the auditors)			
Annual leave		7,734	—
Depreciation		4,159	3,306
Interest received — other persons		(14,454)	(14,020)
Income tax expense (Note 1 (d))		0	0
OPERATING PROFIT		18,078	13,946
ACCUMULATED FUNDS 1st January 1984		55,109	41,163
ACCUMULATED FUNDS 31st December 1984		**$73,187**	**$55,109**

THE WIRELESS INSTITUTE OF AUSTRALIA NOTES TO AND FORMING PART OF THE ACCOUNTS FOR THE YEAR ENDED 31ST DECEMBER 1984

NOTE 1 — ACCOUNTING POLICIES

Accounting policies which have been consistently applied in the presentation of the financial position and results of operations are in accordance with the accounting standards issued by the Australian accounting bodies. The accounts have been prepared under the historical cost convention, and therefore do not reflect changes in purchasing power of money or, except where specifically stated, current valuations of non-monetary assets.

(a) Subscriptions are accounted for on a cash basis, with the exception of subscriptions paid in advance which are taken up as current liabilities.
(b) Fixed assets are depreciated at the rate of 20% based upon the prime cost method.
(c) Stock on hand is valued at the lower of cost and net realisable value.
(d) The company is a non-profit organisation, and no income tax is payable for the year ended 31st December 1984.

NOTE 2 — REVENUE

Subscriptions	$185,819
Advertising	48,892
Interest	14,454
Other	23,897
	$273,062

WIRELESS INSTITUTE OF AUSTRALIA DIRECTORS' STATEMENT

In the opinion of the Directors of the Wireless Institute of Australia:

(a) The Profit and Loss Statement is drawn up so as to give a true and fair view of the Profit of the Institute for the financial year ended 31st December 1984.
(b) The Balance Sheet is drawn up so as to give a true and fair view of the state of affairs of the Institute as at the end of the financial year.
(c) At the date of the statement, there are reasonable grounds to believe that the Institute will be able to pay its debts as and when they fall due.

Signed on behalf of the Council
D A Wardlaw
R. Burstal

Caulfield,
12th April 1985

AUDITORS' REPORT TO THE MEMBERS OF WIRELESS INSTITUTE OF AUSTRALIA

We have audited the accounts in accordance with Australian Auditing Standards.

In our opinion:

(a) the accounts are properly drawn up in accordance with the provisions of the Companies (Victoria) Code and so as to give a true and fair view of:
(i) the state of affairs of the company at 31st December, 1984 and of the profit of the company for the year ended on that date;
(ii) the other matters required by Section 269 of that Code to be dealt with in the accounts;
and are in accordance with Australian Accounting Standards.
(b) the accounting records and other records, and the registers required by that Code to be kept by the Company have been properly kept in accordance with the provisions of that code.

Touche Ross & Co.

Signed: A P McGee — Partner
Chartered Accountants

Moorabbin
12th April 1985

DISCLAIMER

The additional financial data presented in the following columns is in accordance with the books and records of the Wireless Institute of Australia which have been subjected to the auditing procedures applied in our statutory audit of the company for the year ended 31st December 1984.

It will be appreciated that our statutory audit did not cover all details of the additional financial data. Accordingly, we do not express an opinion on such financial data, and no warranty of accuracy or reliability is given.

Neither the firm nor any member or employee of the firm undertakes responsibility in any way whatsoever to any person (other than Wireless Institute of Australia) in respect of such data, including any errors or omissions therein however caused.

Touche Ross & Co.
Chartered Accountants

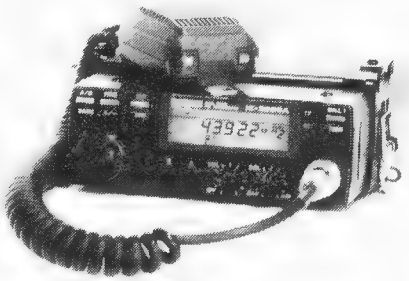
12th April 1985

THE WIRELESS INSTITUTE OF AUSTRALIA DETAILED PROFIT AND LOSS STATEMENT FOR THE YEAR ENDED 31ST DECEMBER, 1984

AMATEUR RADIO	***1984***	***1983***
INCOME		
Subscriptions	3263	2400
Advertising	48892	46184
Inserts & divisional notes	1564	2484
Sundry income	12	0
	53731	**51068**
LESS EXPENSES		
Awards	230	0
Bulk posts	24547	21191
Drafting	980	0
Envelopes	5744	0
Printing	53387	74211
Sundries	1105	0
Salaries	26388	20775
Telephone	1370	0
Travel	6203	14869
Typesetting	17167	0
Wrappings	6030	5999
	143151	**137045**
NET LOSS	**$(89420)**	**$(85977)**
GENERAL		
INCOME		
Donations	913	1550
— Other	0	150
— Import duty by-law	0	1400
Interest received	14454	14020
Technical committee	5185	0
Call Book	13688	17101
WIA Book Vol 1	0	68
Subscriptions	182556	172996
Magazines & publications	2050	3082
Sundry income	485	0
	219331	**210367**
LESS EXPENSES		
Annual leave	7734	2083
Audit and accounting fees	2750	1505
AMSAT	(1505)	0
Awards	24	207
Bank Charges	1302	1092
Committee expenses	1799	3024
Convention expenses	9581	7904
Depreciation	4159	3306
Electricity	761	545
EDP expenses	5450	6500
General expenses	477	1328
Import duty by-law	0	2435
Insurance	1280	1503
IARU dues	3850	4347
Membership recruiting	1632	0
Postage & freight	5618	7577
Printing, stationery & office supplies	5633	4562
PR activity	1164	1324
Rent & rates	5106	4560
Repairs & maintenance	1615	532
Salaries & secretarial	48661	55206
Telephone	1322	1044
Travel	3420	1943
	(111833)	(110444)
NET PROFIT	**$107498**	**$99923**
TOTAL NET PROFIT	**$18078**	**$13946**

This is the Detailed Profit and Loss Statement referred to in our disclaimer dated 12th April, 1985.

Touche Ross & Co.
Chartered Accountants

WE-CAM
AR85
SUPPLY
ICOM
Amateur, Commercial and UHF CB Equipment.

ICOM IC-3200A
(Props. B. M. & B. P. Stares)
11 Malmesbury Street, Wendouree 3355
Phone (053) 39 2808

INTERNATIONAL NEWS

THE 60TH ANNIVERSARY OF IARU

In every walk of life, achievement results in great part from the ability of leaders to have a vision of the future, from their ability to look beyond today's petty problems and see what might be.

Thus it was that in 1924 Hiram Percy Maxim and the American Radio Relay League (ARRL) realised that amateur radio had become international in scope, and that there ought to be an international organisation, to take advantage of the progress and to tackle the problems that would surely attend such a growth. So in March 1924, Mr Maxim met with a group of talented amateurs in Paris, and made preliminary plans for an international organisation to be known as the International Amateur Radio Union (IARU), with a Congress to be held in April 1925 to effect the permanent organisation. Present at the 1924 meeting were enthusiastic representatives from France, Great Britain, Belgium, Switzerland, Italy, Spain, Luxembourg, Canada and the USA.

During the Easter holidays of April 1925, the amateur radio representatives of 23 countries met again in Paris to officially create the International Amateur Radio Union and to adopt a constitution. The original IARU differed a bit from what we have today, but the goals were much the same — to promote and co-ordinate amateur radio worldwide, to encourage fraternalism and to represent amateur radio at international conferences. In the original organisation, individual amateurs became members of IARU, and Mr Maxim was member number one. While most of the 23 countries represented at the first meeting were from Europe, there were also representatives from North and South America, and from Japan.

On 17 April 1925, the constitution of IARU was unanimously adopted, and on 18 April, at the final plenary session (by which time 25 countries were in attendance), all actions of the organising Congress were approved, and the International Amateur Radio Union was born.

As an aside, it is fascinating to note that two individuals who participated in those 1924/1925 meetings are still alive and are active radio amateurs. One is Dr Giulio Salom I0ACL, operating on the air regularly from his homes in Venice and Rome. He visited the Region 1 IARU conference in Cefalu, Sicily last year, and he is a hale and hearty 82 years of age. Dr Salom is a physical sciences and law graduate, and served for 30 years in the Italian Navy. The other IARU pioneer is Jean Wolff LX1JW, who is a familiar figure at amateur radio meetings throughout Europe and in the USA. He served the US Army with distinction in WW II, and was a member of the Luxembourg telecommunications administration. He, too, is in fine health and is a great source of knowledge about amateur radio throughout the years.

Although IARU started out life with individual memberships, it was later changed to a union of member-societies, and now has 121 national societies as members, with two more applications pending. As a result, IARU represents the international interests of one and a half million radio amateurs.

The history of IARU has been that of gradually increasing effectiveness, and there are clear signs that the effectiveness has increased markedly in the past decade. The Union has grown from one whose emphasis was largely on the issuance of Worked-All-Continents certificates and the reporting of exploits of long-distance communication (DX), to one whose primary emphasis is on the preparation for international telecommunications conferences.

And yet, back in 1925, in the earliest days of international radio regulation of any sort, when international DX was still a rare occurrence, those men of vision who put together the first IARU constitution recognised that preparation for conferences was an important goal for IARU.

It was the continued emphasis on that goal of conference preparation that led to the restructuring of IARU subsequent to 1979, a restructuring that has made IARU more truly international not only in scope but in administration and leadership. Now, the decisions made in the name of IARU are reached by a body — the IARU Administrative Council — which has on it two representatives from each of the three IARU regions.

There are some growing pains when adapting to a new organisational structure, but there is every indication that it is better prepared to handle the next General WARC than it was for WARC-79. IARU has a more truly international leadership, and continue to have the substantial support of ARRL, whose distinguished president, Hiram Percy Maxim, got the ball rolling in the first place 60 years ago.

In the history of mankind, 60 years is but the blink of an eyelid, hardly to be noticed. In the history of amateur radio, 60 years is a long time indeed.

(The above was originally written for the April 1985 issue of QST, the official journal of ARRL, which serves as the International Secretariat of IARU.)

HF BAND PLANS

At its meeting in Paris last July, the Administrative Council of the IARU requested that the Secretaries of the three Regional Secretariats send copies of regionally adopted band plans to the International Secretariat for publication "in a format that will permit comparison".

Here are the band plans for the bands below 30 MHz. The plans that have been adopted for bands above 30 MHz will be presented in the future.

The members of the Administrative Council are to attend the November meeting of the Council prepared to discuss the band plans, with the objective of adopting such internationally recognised band plans as may be appropriate at that time.

The only band plan adopted so far by the Union itself is as below.

21.000-21.150 MHz — Telegraphy only
21.150-21.450 MHz — Telephony (AM and FM) and Telegraphy

This appears, as Rule 8, in the Summary of Miscellaneous Rules (which are still in effect under the new Constitution, pending a review scheduled for the aforementioned Administrative Council meeting).

Region 1

The IARU Region 1 Division has adopted the following band plans:

3.500- 3.800 MHz	*CW*
3.580- 3.620	*RTTY*
3.620- 3.800	*Phone (except 3.730-3.740 MHz)*
3.730- 3.740	*SSTV*
7.000- 7.100 MHz	*CW*
7.035- 7.040	*RTTY and SSTV*
7.040- 7.100	*Phone*
10.100-10.150 MHz	*CW*
10.140-10.150	*RTTY*
14.000-14.350 MHz	*CW*
14.080-14.100	*RTTY*
14.100-14.350	*Phone (except 14.225-14.235 MHz)*
14.225-14.235	*SSTV*
18.068-18.168 MHz	*CW*
18.100-18.110	*RTTY*
18.110-18.168	*Phone*
21.000-21.450 MHz	*CW*
21.080-21.100	*RTTY*
21.150-21.450	*Phone (except 21.335-21.345 MHz)*
21.335-21.345	*SSTV*
24.890-24.990 MHz	*CW*
24.920-24.930	*RTTY*
24.930-24.990	*Phone*
28.000-29.700 MHz	*CW (except 28.200-28.300 and 29.300-29.550 MHz)*
28.050-28.150	*RTTY*
28.200-28.300	*Beacons*
28.300-29.700	*Phone (except 28.675-28.685 and 29.300-29.550 MHz)*
28.675-28.685	*SSTV*
29.300-29.550	*Satellite*

Region 2

So, far, IARU Region 2 has adopted band plans only for the 10, 18 and 24-MHz bands, which are identical with those of Region 1.

Region 3

Below are the band plans adopted by the IARU Region 3 Association. Note that RTTY is permitted in the entire 10-MHz band.

10.100-10.150 MHz	*CW and RTTY*
18.068-18.168 MHz	*CW*
18.100-18.110	*RTTY*
18.110-18.168	*Phone*
24.890-24.990 MHz	*CW*
24.920-24.930	*RTTY*
24.930-24.990	*Phone*

TURKEY AND THAILAND AUTHORISE AMATEUR RADIO

After many years of efforts by Turkiye Radyo Amatorleri Cemiyeti (TRAC), the Turkish government has legalised the amateur service. The first license was issued on 30 January to Dr Unal Akbal, who is General Secretary of TRAC. Unal's official callsign is TA1A.

TA1A is the prefix for Istanbul, while the Asian part of the country is divided into seven call areas: TA2 through TA8. Privileges are all bands (including the WARC bands), all modes, up to 400 watts PEP.

During 1984, the Royal Thai Government authorised the use of two callsigns by the Radio Amateur Society of Thailand (RAST) on five special occasions. HS0A was operated in the Seanet DX, European DX, and CQ Worldwide Phone Contests, and at the RAST 20th anniversary celebration in November. The other authorisation was granted in July for the operation of HS0JUA on behalf of UNICEF. RAST is working towards full recognition and legalisation of amateur radio by the administration.

Congratulations to all those whose persistence made these achievements possible in Turkey and Thailand.

ANNIVERSARIES

1985 is the 60th anniversary year for IARU. In addition, this year marks special anniversaries for many of its member-societies, including the WIA's 75th Anniversary.

Three societies celebrate their 60th anniversary: Reseau des Emetteurs Francais (REF), South African Radio League (SARL), and Foreningen Sveriges Sandareamatorer (SSA).

In conjunction with its annual convention, the French society organised the first Radio Telecom Show in Chateauroux on 25-27 May.

Festivities to mark the 60th anniversary of SARL centred around its annual general meeting over the first weekend of April.

The Swedish society will issue a 60th anniversary version of the popular operating award it sponsors: WASM-60. Only contacts made during 1985 are valid for this special award.

Two societies were founded in 1945, thus celebrating the 40th anniversary this year. They are VERON of the Netherlands, and CREN of Nicaragua.

The Korean Amateur League (KARL) held its 30th anniversary ceremony on 28 April. A special station, signing HL30HQ, was QRV from 25 April to 1 May. In addition, the KARL 30th Anniversary Award will be issued to those who have contacted 30HL stations during the first four months of this year.

Other societies for whom 1985 is a special year are: GARC of Grenada (30th anniversary), ABARS of Antigua and Barbuda, FRA of Faroe Islands (20th anniversary), and SLARS of Sierra Leone (10th anniversary).

Congratulations to all!

TSUKUBA EXPO ON AIR

The Japan Amateur Radio League (JARL) has established a special amateur radio station at the Tsukuba Science Expo '85, which is being held in Tsukuba Science City, Ibaraki, Japan, from 17 March to 16 September, 1985. Signing 8J1XPO, the station is QRV in the 3.5, 7, 14, 21 and 28-MHz bands with a maximum output power of 500 watts. Transmission can be made in CW, SSB, RTTY, FAX and SSTV.

JARL asks amateurs who plan to go to this event to take their amateur radio license; any licensed amateur may operate 8J1XPO without individual authorisation by the Japanese government.

Further information can be obtained from: *Japan Amateur Radio League, 1-14-2 Sugamo, Toshima, Tokyo 170, Japan.*

UN AT 40 AWARD

On 24 October 1985, the United Nations will celebrate the 40th anniversary of the coming into force of the United Nations Charter signed in San Francisco in 1945. To celebrate this event, and in the spirit of developing friendly relations among nations, the United Nations Staff Recreation Amateur Radio Club is sponsoring the UN at 40 Award.

This award is available to any amateur radio station (or SWL) that has contacted two of the three amateur radio stations operating with the United Nations prefix, during the United Nations 40th anniversary celebration year from 1 January to 31 December 1985. Contacts can be made on any band or mode. The three stations are:

4U1UN at the United Nations Headquarters in New York, USA

4U1ITU at the International Telecommunication General Secretariat in Geneva, Switzerland

4U1VIC at the Vienna International Center in Vienna, Austria

Applicants must send a list of the stations worked, including date, time, mode, report and band. This list must contain a signed statement vouching for the bona fides of the application. The cost of the award is US$5.00 or 15 IRCs, of which US$4.00 will be donated to the United Nations Children's Fund (UNICEF).

The application must be sent before 1 February 1986 to: *United Nations Staff Recreation Council, Amateur Radio Club, United Nations, Room DC1-0724, PO Box 20, New York, NY 10017, USA.*

AR

AR SHOWCASE

AUSTRALIA'S FIRST ICOM DAY

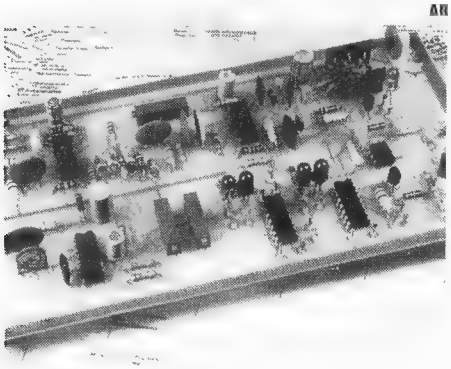
Icom Day, the first of its kind held in Australia, is being hailed as an unqualified success according to spokesmen from parties sponsoring it, Icom Australia and GFS Electronic Imports.

It was held on Sunday 14th April at GFS Electronic Imports' premises. An extremely bad electrical storm held off, fortunately, until the show was over. Both a range of Icom products as well as others handled by GFS were on display including a new range of Japanese antennas from Sagant Antenna Co.

Visitors to Icom Day were also given a live demonstration of Satellite TV which included programmes direct from the USA, Perth and Brisbane. It was also hoped that three new Icom products would make their debut on the day but due to Murphy, as well as some production delays, this didn't eventuate. Icom express their apologies to those who came especially to view these.

The IC-2A door prize, offered by Icom Australia, can be seen in the photo being presented to the winner, Tony Falla VK3XFK by Greg Whiter of GFS.

AR



RTTY/CW MOD-DEMOD

GFS Electronic Imports have available, in kit form or fully assembled and tested, a radio teletype and CW modulator-demodulator which is designed to provide its user with satisfactory performance even under noisy HF operating conditions.

Known as the MDK-17 this radio modem uses a receive line-up that consists of an active 40 dB limiter and bandpass filter followed by a phase locked loop detector. Signal tuning is simplified by the inclusion of three LED indicators — Lock, Mark and Space.

A wide range of shifts, tone frequencies and speeds are accommodated including those used in ASCII, AMTOR, SITOR and ARQ.

The MDK-17 can be interfaced with most of today's popular computers through its TTL level I/O port. Instructions are also included on the addition of RS-232 for those who require it. It additionally provides a direct high voltage current loop I/O for use on mechanical RTTY machines such as the Siemens 100 etc. High isolation between the current loop and the MDK-17s electronics is provided by an opto-coupler.

The MDK-17 kit is priced at $118 while the MDK-17 fully assembled and tested version is $181 plus $14 P&P in both cases.

For more details contact: GFS Electronic Imports, 17 McKeon Road, Mitcham, Vic. 3132. Phone (03) 873 3777.

AR

SIMPLE TERMINATION CLIPS

New guy termination clips are now available from GFS Electronic Imports for their range of Debeglass tower guys. Debeglass is a high tensile strength, low elongation, non-corrosive, non-conductive guy wire substitute. Its extremely high strength, to cross section ratio is brought about by the use of a continuous filament fibreglass core sheathed in UV stabilised PVC. Four Millimetre DB-4 has a tensile strength of 430 kg while 5 mm DB-5 is rated at 560 kg tensile strength.

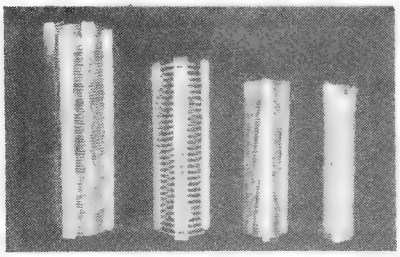
Up until recently standard termination procedures for Debeglass included the use of thimbles and "D" clamps. The new Debeclips offer an alternative to this which saves the installer quite a deal of time, particularly on a large installation.

Attachment of a Debeglass guy to a Debeclip simply involves knotting the end of the guy, inserting it into the clip then screwing on its cover.

For further information contact the Australian distributors, GFS Electronic Imports, 17 McKeon Road, Mitcham, Vic. 3132. Phone (03) 873 3777.

AR

AIR-WOUND INDUCTANCES



No	Diam	Turns per Inch	Length	B & W Equiv	Price
1-08	½"	8	3"	No 3002	$1.60
1-16	½"	16	3"	No 3003	$1.60
2-08	⅝"	8	3"	No 3006	$1.90
2-16	⅝"	16	3"	No 3007	$1.90
3-08	¾"	8	3"	No 3010	$2.30
3-16	¾"	16	3"	No 3011	$2.30
4-08	1"	8	3"	No 3014	$2.60
4-16	1"	16	3"	No 3015	$2.60
5-08	1¼"	8	4"	No 3018	$2.90
5-16	1¼"	16	4"	No 3019	$2.90
8-10	2"	10	4"	No 3907	$4.20
8-10/7	2"	10	7"	No 3907	$7.20

Take the hard work out of Coil Winding — use "WILLIS" AIR-WOUND INDUCTANCES

WILLIAM WILLIS & Co. Pty. Ltd.

98 Canterbury Road, Canterbury, Vic. 3126
PHONE: 836 0707

AR85

HOME-BREW REGULATED POWER SUPPLY

Des Greenham, VK3CO
16 Clydesdale Court, Mooroopna, Vic. 3629

Some time ago an article on this subject was published by the author resulting in a surprising response by amateurs from all around Australia who were keen to "home brew" a power supply that would operate a 25 watt 2 metre FM unit and at the same time, keep down the cost to an absolute minimum. The unit to be described is basically the same as the previous article except that the overall cost has been further reduced by utilising some less expensive components.

The supply to be described has an output of 13.8V adjustable, with an output capability of 10 amps, more than enough to drive the average 25 watt transceiver.

The actual layout and construction details are left to the constructor as they are not critical. The heart of any power supply is the transformer. A commercial unit, with the necessary capacity, is a costly item to buy. In this case, the transformer to be used is one recovered from an old black and white television, many of which are resting as junk in shacks, sheds and elsewhere.

The transformer is partly dismantled and the old secondary removed and replaced with a new 19 volt winding. This operation is not difficult but takes a little time and patience.

The 19 volt winding is fed into a conventional rectifier bridge of 30 amps capacity, and the DC output is then controlled by a UA78MG regulator and a pair of 2N3055 power transistors which are mounted on a heavy heat sink. This can either be a commercial fin type or a very heavy piece of aluminium or copper U section material. The heat sink is best mounted outside the case to allow better ventilation and heat dissipation.

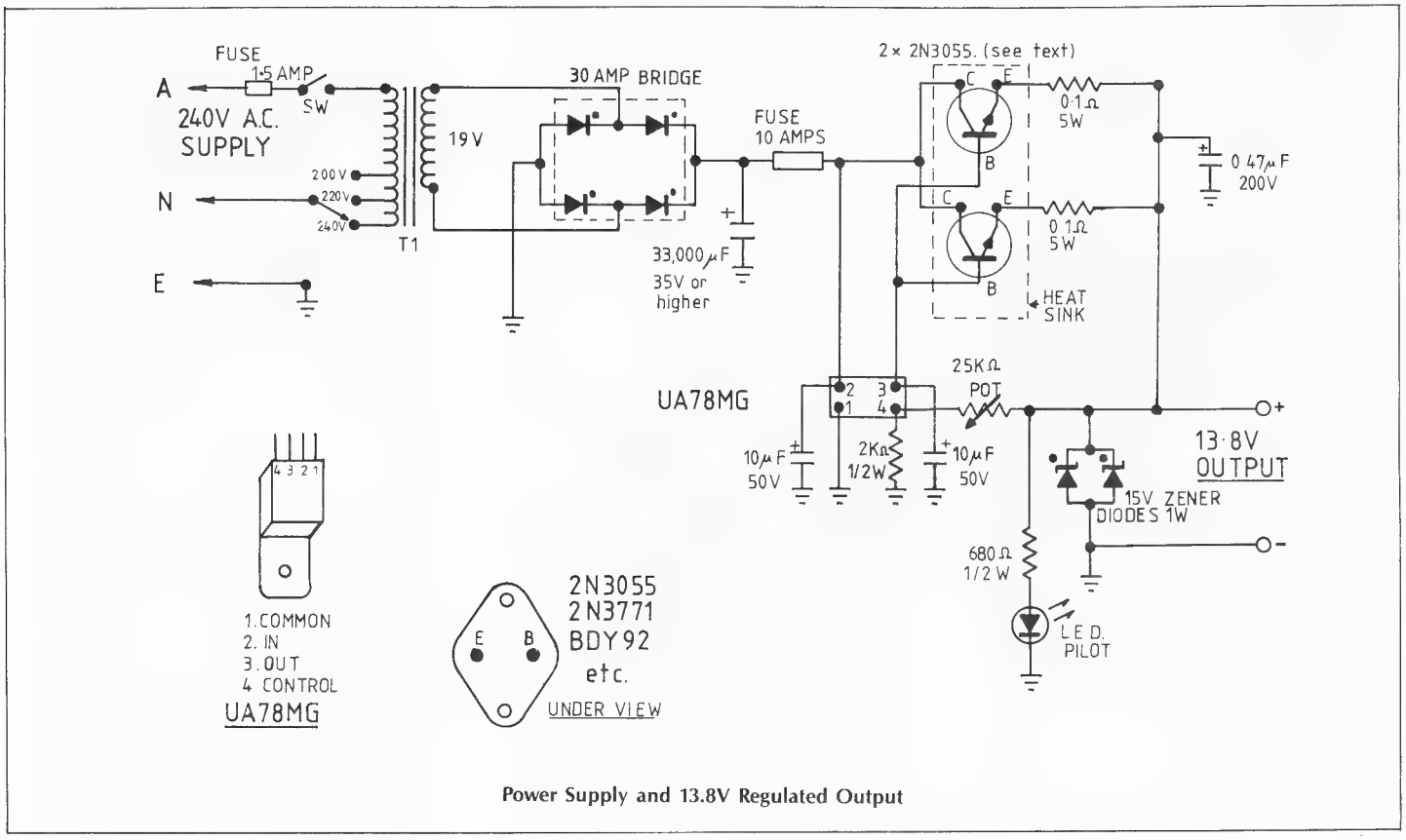
Generally, components these days are most reliable. However should one of the regulating transistors develop an internal short circuit from collector to emitter the output voltage would immediately jump to a dangerous value, around 25 volts, causing instant damage to valuable equipment. Most equipment can operate up to 15 volts before damage occurs. It is desirable therefore to protect the equipment from anything above 15 volts.

Many commercial suppliers have sophisticated and naturally expensive protection systems one being the crowbar. In this type when the output exceeds 15 volts a Zener diode conducts and fires an SCR which in turn short circuits the output and operates a fuse. In this supply to keep costs down we have fitted two Zener diodes (15 volt) across the output. In the event of some internal fault developing causing an increase in output voltage, the Zener diodes conduct and short the output thus protecting the equipment. The current carried by the Zener diodes far exceeds their normal rating and they immediately burn up. When a Zener diode is destroyed it invariably becomes short circuit and consequently operates the fuse, switching off the supply and completely isolating the equipment. The only cost of repair would be the faulty regulating transistor and the replacement of two well-cooked Zener diodes worth only a few cents. However, this is a remote risk and may never happen. It is reassuring however to know there is some form of over voltage protection when using the supply on valuable equipment.

CONSTRUCTION DETAILS

The TV power transformer should be carefully examined for any damage. It should be removed from the chassis noting and marking the 240, 220, 210 volt primary input winding connections. The secondary heater winding is usually 6.3 volts. This winding is obvious because it is wound with heavy gauge wire. After removal, connect the primary to the 240 volt mains supply and check the secondary heater winding with a multi-meter (AC volts) to ascertain if it is 6.3 or 12.6 volts.

After checking carefully tie back the primary connections to avoid breaking the wires. The transformer should now be dismantled by firstly removing the four bolts holding the laminations and frame together. After removal of frame and



Power Supply and 13.8V Regulated Output

clamps the first lamination should be removed. This is the most difficult part of the entire project as these are usually pressed in by machine and difficult to remove. A thin bladed screwdriver driven in between laminations can frequently enable one lamination to be gripped by long nosed pliers and removed. The laminations are usually in a "E" and "I" shape configuration and should be completely removed and stacked.

The heater winding is on the outside of the winding and this should now be carefully unwound making sure to *count the turns as they are removed.* When this winding has been removed and the number of turns noted the remaining secondary winding can be stripped either by unwinding or *careful* use of a hacksaw. This is because the primary winding underneath is to be reused. Some transformers from Astor and AWA sets have a double bobbin winding with primary on one side and secondary on the other. These are particularly easy to rewind. The more usual type have the primary against the core then the high voltage secondary and finally the heater winding on the outside.

Having now stripped the bobbin down to its basic primary winding we must now calculate the turns ratio of the transformer. The turns per volt figure is found by dividing the turns counted by the heater winding voltage. This is nominally 6.3 or 12.6 volts however most manufacturers wind transformers for 6.5 or 13 volts to allow for a voltage drop. It is common to find that the 12.6 volt winding has thirty nine turns. The turns per volt figure would be $\frac{39}{13} = 3$.

This means we need three turns on the secondary for each volt of secondary output. In our case we need 19 volts, therefore we would need 3 x 19 = 57 turns. This is only an example and you must calculate for your particular transformer to obtain 19 volts output.

To rewind the secondary we need wire that will supply 10 amps without overheating 14 Gauge B & S is adequate and can be purchased from retailers or automotive electricians. A length of 10 metres should be enough for an average transformer. The winding is wound on carefully layer by layer. It can be jumble wound if there is enough space.

The turns must be carefully counted on and when the winding is completed a layer of PVC tape wound around the winding. The ends should be covered with spaghetti (plastic tubing) and extended out in a similar way to the original heater winding. Now the core should be replaced by fitting the laminations back into the bobbin. If the laminations are the E and I type it is easier to fit three E sections at a time alternating the direction. The I pieces can be fitted later.

It is part of Murphys Law that all the laminations removed will never be replaced so do your best. The last few will be difficult to fit and careful use of a *small* hammer will assist. The assembly should be tapped into square shape with the hammer and the four bolts and mounting plates fitted. When finally together, and looking like original, connect 240V AC to the primary and check the secondary voltage. If your calculations have been correct and all care taken your meter will read 19 volts. If your reading is NOT EXACTLY 19 volts you can adjust by changing the primary tapping. By connecting 240volts mains to the 250 volts tapping, the output will be dropped and similarly connecting to the 230 volts tapping will increase the output.

The general assembly of the power supply will be left to the constructor. The transformer should be well mounted and all bolts tightened to prevent buzz. The regulator can be mounted in any position and does not require any heat sink. It can be mounted on a small piece of aluminium formed into a bracket. It is important that the bypass capacitors be mounted directly on the regulator itself and *not* wired away. The output fuse should be rated only marginally higher than the maximum load expected. To operate a set such as an IC22S a fuse rating of 5 amps would be adequate. The main filter capacitor shown as 33,000 mFd is from a disposal computer power supply and is readily available.

Any value larger than 25,000 mFd would be acceptable and this could be made up from several smaller capacitors wired in parallel. An example could be five capacitors, each 5000 mFd, wired in parallel. Be sure the voltage rating is adequate. Any rating higher than 30 volts working is sufficient.

Whilst 2N3055 power transistors are specified, other similar types can be used provided they are NPN construction. Many are available on the disposal market at a very reasonable price. Equivalents that have been tested and found to be suitable are BDY-92 and 2N-3771.

CONSTRUCTION — GENERAL

After completion of wiring and circuit check, remove one side of the Zener diodes before switching on in case the output voltage is high. Connect an accurate DC voltmeter across the output and switch on. If everything is correct, output will be seen. This can be carefully adjusted with the control potentiometer to 13.8 volts — the LED will be glowing. Switch off, and reconnect the protection Zener diodes. Your supply is now ready for use. Connect a transceiver and check with another station for any noise or hum. The supply is clean and hum free and exhibits good regulation. The voltage drop when transmitting is barely discernable.

With the values shown, and a good transformer, a regulated output in excess of 10 amps will be obtained with a minimum dent in the domestic budget.

AR

Technical Editors Note

Constructors of projects such as this should pay particular attention to component ratings. The output load, environment, and duty cycle may well require special consideration. This is of particular concern as the output capabilities increase. Heat sink requirements and power transistor ratings should be carefully considered.

SPURIOUS TRANSMISSION CHECKER

Bruce Hannaford VK5XI
57 Haydown Road, Elizabeth Grove, SA 5112

This checker is so simple and so useful that it is difficult to understand why it is not already in use in most amateurs shacks. I originally developed it for RTTY but it is also useful for SSB and CW. Looking at the circuit of the unit you could be excused for thinking how on earth that simple thing can do any useful checking of any kind whatsoever?

From the circuit of the unit it will be clear if it is coupled to a properly functioning transmitter nothing will be heard unless amplitude modulation is taking place. The coupling to the transmitter is done by a short length of insulated wire from the checker antenna terminal wrapped around or taped to the coaxial feeder near the transceiver. Use enough wire to get good coupling so reasonably loud modulation can be heard when transmitting SSB. Check the coupling is sufficient for all bands you use. Normally the speaker will be used for CW and RTTY and the phones for SSB.

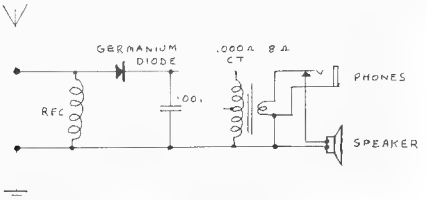


Figure 1

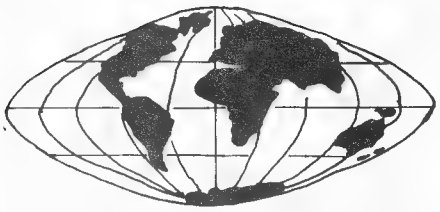
Firstly checking for CW problems, keying will modulate the carrier and the level of key clicks compared to the SSB level of a normal SSB transmission will tell if you have key click problems. Usually the clicks will be quite faint and more of a thump than a click. Also if the carrier is not clean and some hum, etc is present this will be easily heard. If any audio tones or squarking sounds are heard you have big problems and these are probably due to RF feedback oscillations.

For HF bands FSK RTTY a clean carrier (even one changing in frequency) will produce no audio output apart from slight key clicks of about the same level as good CW. However if spurious keying or modulation outputs are present these are then heard as audio tones or "squarks" of some sort. With HF band FSK RTTY generated by audio tones into a SSB transceiver it will normally be found low levels of audio input produce no audio signals from the checker but as the input level is increased a setting will be found where spurious tones or squarks are heard, needless to say you then operate at a somewhat lower setting or find out what is wrong. This checker is very useful indeed for RTTY generated in this manner, as soon as you do the wrong thing or something goes wrong you get an audible warning from the checker speaker.

With SSB, the modulation will be heard in the headphones but be barely understandable, if there are no spurious modulation signals present the modulation will have a "smooth" sound but with spurious signal outputs this will become rough and harsh sounding. Using a dummy antenna, try overdriving the transceiver and note the change of sound that occurs when spurious outputs are being generated.

Fortunately almost all spurious outputs of a modulation distortion or key clicking nature produce beats that will give rise to audio being heard in the checker, once an operator gets used to using the checker and what sounds to expect from it no more bad transmissions of spurious modulation signals should occur.

AR



VHF UHF - an expanding world

Eric Jamieson, VK5LP
1 Quinns Road, Forreston, SA 5233

All times are Universal Co-ordinated Time and indicated as UTC.

AMATEUR BANDS BEACONS

Freq	Call sign	Location
50.005	H44HIR	Honiara
50.008	JA2IGY	Mie
50.075	VS6SIX	Hong Kong
50.109	JD1YAA	Japan
51.020	ZL1UHF	Mount Climie
52.033	P29BPL	Loloata Island
52.100	ZK2SIX	Niue
52.200	VK8VF	Darwin
52 250	ZL2VHM	Manawatu
52.300	VK6RPH	Perth
52.310	ZL3MHF	Hornby
52.325	VK2RHV	Newcastle
52.350	VK6RTU	Kalgoorlie
52.370	VK7RST	Hobart
52.420	VK2RSY	Sydney
52.425	VK2RGB	Gunnedah
52.440	VK4RTL	Townsville
52.450	VK5VF	Mount Lofty
52 465	VK6RTW	Albany
52.470	VK7RNT	Launceston
52.490	ZL3SIX	Blenheim
52.510	ZL2MHF	Upper Hutt
144.019	VK6RBS	Busselton
144.410	VK1RCC	Canberra
144.420	VK2RSY	Sydney
144.465	VK6RTW	Albany
144.565	VK6RPB	Port Hedland
144.480	VK8VF	Darwin
144.800	VK5VF	Mount Lofty
145.000	VK6RPH	Perth
147.400	VK2RCW	Sydney
432.057	VK6RBS	Busselton
432.160	VK6RPR	Nedlands
432.420	VK2RSY	Sydney
432 425	VK3RMB	Ballarat
432 440	VK4RBB	Brisbane
1296 171	VK6RBS	Busselton
1296.480	VK6RPR	Nedlands
10300.00	VK6RVF	Roleystone

The Roleystone 10.3 GHz beacon is now listed in the "Western Australian VHF Group Bulletin" so it seems sensible to include it in this list.

THE EME SCENE

Doug VK3UM continues to successfully work stations via the moon and his present tally is 15 countries for 30 individual contacts on 70cm from November 1984 to April 1985. His latest successes were realised on 27/4 when the following took place:

0402: K2UYH 559 sent, 549 received, then two way SSB 5x5 and 4x4. 0440: JA6CZD 449/449; 0555: W7GBI 0/0; 0630: JA4BLC 549/549; 0700: ZL2AQE 0/0; 0843: JR4AEP 0/0; 1020: OK1KIR 439/439; 1033: LA1K 439/439; 1100 SM6EUP 0/0; 1120: HB9SV 549/569; 1130: G3LTF 549/539; 1149: F1FHI 549/559.

On 28/4: 0500: K2UYH 559/559; 0537: VE4MA 439/439; 0559: N9AB 549/549; 0950: OZ7UHF 0/0; 1008 SM3AKW 449/449 (he was using 100 watts to a 5m dish); 1112: DF3RU 449/449; 1127: G3LQR 449/449; 1149: G3SEK 439/439; 1207: DL9KR 559/559; 1244 F1FHI 559/559.

On looking back over the list there are some very good signal reports emanating so it looks as though there are a lot of people including Doug who are getting their act right. Additionally, on 13/4 Doug worked VK2DVZ at 0845 at 5/1 and 5/3 and VK7DC was 5x9 off the back of his EME antenna whilst it was at an elevation of 10° on the moon!

MORE FROM MELBOURNE

Lionel VK3NM, has been getting in the act by sharing the contacts being made via aircraft enhancement, the theory being that vapour trails from jet engines can lift the signals significantly for many minutes sometimes. This is the work that Gordon VK2ZAB has been so actively engaged in with Doug VK3UM, where 144.200 MHz is used on Saturday and Sunday mornings at 2230 to conduct the experiments. Lionel says no super high power is needed, only a good antenna with a suitable pre-amp being needed as well as some patience!

Plans are in hand at an appropriate time to have stations on at both ends with continuous signals all day and to make notes of the observations.

One method of handling the contacts is outlined by Lionel when VK3NM made two contacts with VK1BG on 70cm. Both stations liaised on 80 metres, monitored aircraft traffic and calculated when contact should be possible. On both occasions both signals were the same strength and duration.

That results have been encouraging is shown by the following contacts either by tropo (T) or aircraft enhancement (AE). *16/2 VK7DC 432 (T); 16/2: VK5ZDR, VK5NY, VK5RO 144 (T); 17/2: VK5NC 144 (T); 2/3: VK1GL, VK2ZAB 144 (AE), VK5NY, VK5RO 144 (T); 3/3: VK7ZAP 432 (T); 8/3: VK1GL 144 (AE);* 9/3; VK1BG, VK1GL 144 (AE); 14/3: VK5NY, VK2YEZ *144 (T), VK2ZAB 144 (AE); 16/3: VK7DC 52,144, 432 (T), VK7KAJ 432 (T); 17/3: VK2YEZ 144 (T); 18/3: VK5DK 144 (T); 21/3: VK7DC 144 (T); 24/3: VK5NY 144 and 432 (T); 29/3: VK2ZAB 144 (AE), VK7JG, VK5NY, VK5RO 144 (T); 30/3: VK2ZAB 144 (AE); 31/3: VK1BG 432 (AE); 7/4: VK5NY 144 (T); 12/4 VK1GL 144 (AE), VK7DC 432 (T).* Lionel certainly seems to have been a busy boy and it is good to see four States sharing in the contacts.

NEWS FROM THE SYDNEY AREA

Gordon VK2ZAB sent another letter during April which was just too late for inclusion last month but is still current for this time. It continues to show what can and is being done on 144 and 432 MHz and from the jottings it is hoped others will be tempted to give it a try and so spread the contacts.

18/3: 144 Graham VK2MQ Moree 5x3, Ralph VK1RK was 5x7; 19/3 and 20/3 to VK1RK and VK1GL again at S7 to 9 on 144; on 21/3 VK2MQ 5x3 on 144. 22/3 the Friday night, worked on 144 VK2MQ 5x5, on 432 VK1VP 5x5, VK1RK 5x2 and John VK1CJ 5x5. The next morning (Saturday) 23/3: 144 VK2MQ 5x4, Paul VK4AUR Brisbane 5x4, Bill VK4LC Eagle Heights 5x4, John VK4KJL Brisbane 5x3, Peter VK2EVB Coffs Harbour 5x2, Ross VK2ZRE Adaminaby 5x7 plus several VK1s. Several 70cm contacts between Doug VK3UM and VK1 stations but Doug not heard in Sydney by any of the several stations listening for him. 23/3: On 144 Tom VK2DDG Byron Bay 5x6, Ross VK2ZRE 5x5, Les VK3ZBJ Frankston 5x4, Doug VK3UM 5x2, no VK4s copied. 24/3 through 28/3: 144 and 432 contacts with Ralph VK1RK most nights, also a rare 144 contact with Tom VK2QT at Mittagong. 29/3 VK4AUR 5x3, VK4AGQ Angus at Brisbane 5x1, VK4LC 5x2, VK4KJL 5x1, Ken VK2DGT at Coffs Harbour 5x3 all on 144. Later VK1 and VK3 were on both 144 and 432, and Gordon worked VK1BUC, VK2ZRE, VK3ZBJ, VK3AZY, and VK3NM all around 5x3. Nothing heard of VK7JG though he was known to be on. 30/3: VK4LC very weak at 2x1 on 144, but south west contacts were reasonable and included Trevor VK3KEG 5x3, VK2ZRE 5x3, Jim VK3AZY 5x2, Lionel VK3NM 5x1 and VK3UM 5x4, the latter on 432 for the fifth time.

4/4 Friday morning: No replies to calls to north, but 144 to south west gave VK1BUC 5x2, VK1ZQS 5x2, VK1VP 5x3 with their beams on Melbourne. Graham VK1ZEI 5x4, David VK3AUU 5x1, VK2ZRE 5x4, VK3KEG 5x3. On 432 Ross VK2DVZ 5x4 from Taree (5x8 on 144), Tom VK2OD heard working VK2DVZ as well as on 432. 5/4: VK2ZMX 5x4 from Cooma, VK3ZBJ 5x3, VK3KEG 4x1, VK2ZRE 5x5 on 144, VK3UM on 432 5x4 heard working VK1. 6/4: 144 VK1BG, VK2ZRE, VK1ZQS, VK1BUC, VK3ZBJ, VK1GL, VK1ZIF. VK3UM was 5x3 on 432 but mistook Gordon's call for VK2DVZ who was 5x5 in Sydney from Taree! Dick VK2BDN also heard VK3UM. 7/4: 144 VK3ZBJ 5x3, Trevor VK3KEG at 0020. 10/4: 0947 VK3UM and VK3ZBJ both 5x2 on 144, but no 432. At 1033 VK3ZBJ 5x3 on 144 and 1043 VK3UM 5x3 also, but still no 432. Conditions were poor on 11/4 and 12/4 to Melbourne, but on 12/4 Graham VK2MQ at Moree was 5x4. Signals to Melbourne still too weak on 144, but heard VK3UM on 432 at 5x3. 13/4: VK2DDG 5x2, VK2ZRE 5x4 on 144. VK4s on both too weak to work. Also the first weekend since Christmas that no 144 MHz contact was made to Melbourne! 14/4 and 15/4: Local and VK1 contacts on both bands. 16/4: VK2MQ in Moree 4x2 on 144.

Gordon VK2ZAB repeats what I have said many times before, and I quote: *"DX contacts on both 144 and 432 MHz are being frustrated to some extent by people conducting local QSOs on the calling frequencies of 144.1 and 432.1. The newcomers are not always to blame either, some old-time VHF operators seem to forget that some others may not be interested in their lengthy conversations with third parties on the calling frequencies. During the weekend of 12/4 one such conversation on 144.1 lasted 43 minutes. Fair go!! I understand the problem is not confined to Sydney either. Melbourne VHF DXers have the same complaint."*

The above paragraph is straight to the point and quite explanatory and will hopefully be heeded by those offending. It certainly happens in VK5 too, so one can assume there are offenders in all States. Something which adds to the overall problem is that many operators do not leave any breaks between overs, thus no one has a chance to break in. It has been said to me before, these stations are operating on the call frequencies so they might attract the attention of others, then they have little chance of "the others" letting them know they are there if no breaks are left between overs. Three seconds would be quite long enough. It only needs a bit of self-discipline and thought for others for this to be done regularly and everyone would feel better about it. Unfortunately, in quite a few cases these and similar comments are not read by the offending parties because they are not WIA members, so it seems they need to be told direct.

But thanks for writing Gordon. Your notes indicate the quite large degree of activity mainly between-VK2,1 and 3 on both 144 and 432 MHz and as times progress hopefully more stations will be attracted to give it a try.

NEWS FROM USA

From Bill Tynan W3XO and "The World above 50 MHz" from May 1985 "QST" comes two interesting items which I would like to share with you. The first is called "A Banner Year for Meteors" and I quote the relevant parts as follows:

"This may be an especially good year for the 'ping jockeys'-VHF operators who make meteor scatter, or MS, one of their principal pursuits. As mentioned in last month's column, Michael Owen W9IP, believes this may indeed be a 'year to remember'. He bases his contention on the fact that several comets are approaching our part of the solar system. Since comets are accompanied by clouds of particles, and it is particles travelling through space crashing into the earth's atmosphere that are responsible for the ionisation we know as meteor pings, it stands to reason that there may be some really interesting meteor showers in the months to come.

"Meteor showers are named for the area of the sky, the constellation, from which they appear to come, not for the comets that provide the particles. Thus, the Perseids shower, so familiar to VHFers, appears to emanate from the constellation Perseus. Few of us are aware, however, that it is the Swift-Tuttle comet that furnishes the numerous particles that produce this shower. Probably the best known of the comets is Halley's. Almost everyone has heard by now, it is due to visit the inner portion of the solar system over the next few months, putting on a spectacular visual show as it approaches the sun.

"Last month's column contained W9IP's reminder that the Eta Aquarids Shower is due in early May. Mike pointed out that this shower is caused by particles travelling in the same orbit as Halley's comet but somewhat ahead of it. This is the first of the showers that he believes will be particularly productive for MS operators this year. W9IP further notes that its particles approach the earth almost head-on and thus slams into the atmosphere at higher-than-customary velocity. As a result, they ionise the atmosphere at a greater altitude than is the case with many of the other showers. Thus, the Eta Aquarids should be particularly productive of better-than-average MS DX. That shower is expected to peak about 1300 Saturday, 4 May, with east west paths favoured for us in North America.

"Besides the Eta Aquarids in May and the Perseids in August, there are other meteor showers that W9IP believes bear more than mere watching this year. The 3 October Dracanids, a product of the Giacobini Zinner comet, provides another potentially good opportunity.

This comet will have passed the earth's orbit only 29 days before we arrive at that point in space, so there should be a substantial quantity of particles still around when we get there. That should mean lots of meteors. Mike warns, however, that the peak of this shower will last only an hour or so, and will probably occur about 1600UTC, favouring northwest-southeast paths. Eleven days later, on 20 October, particles accompanying Halley's comet should produce the Orionids shower. W9IP notes that this close proximity of comets provides a similar situation to that which made the 1966 Leonids shower so spectacular, with over 150,000 meteors per hour.

"This may be an MS year we will long remember. It should not only be a great sport for experienced ping jockeys, but also serve as an ideal opportunity for newcomers to get their feet wet in this fascinating and productive propagation mode."

Those of you who intend giving the MS mode a try this year could have an interesting time. Why not share your experiences with others by letting me know in a letter for use in this column.

EME ANNALS

The other item of interest from "QST" is headed "EME ANNALS" and shows for each of the bands being used for EME work the number of different stations (not total QSOs) worked and the number of countries contacted.

6 metres: List headed by K5WVX with two stations and one country, others with the same score include WA5HNK, WB6NMT and VP2EME. 2 metres: K1WHS 552 stations, 61 countries and also WAC. Then VE7BQH 443 54 WAC, WA1JXN/7 344 43 WAC, SM7BAE 306 65 WAC. Incidentally, on 6 metres there are 7 call signs listed, and on 2 metres 120 and the list is not complete. On 220 MHz: K5FF 33 stations, 4 countries, W1JR 26 and 3, W5FF 25 and 3. On 432 MHz: K2UYH 268 stations in 41 countries, and WAC, DL9KR 225 35, I5MSH 200 37 WAC, W1JR 171 31, K3NSS 167 20 WAC. There are 54 call signs listed. 1296 MHz: K2UYH 46 20, OE9XXI 46 — , G3TLF 35 18, with 24 call signs. On 2304 MHz: W4HHK 2 1, WA4HGN 2 2, DF0EME 2 2, W3GKP 1 1 and OE 9XXI 1 1, and those five make up the total list.

EME BEGINNINGS

Also from "QST" this is how the EME scene emerged:

27 January, 1953: first amateur reception of echoes from the moon — W4AO and W3GKP on 144 MHz.

27 July, 1960: first amateur two-way contact via the moon — W1BU and W6HB on 1296 MHz.

11 April, 1964: first 144 MHz moonbounce two-way contact — W6DNG to OH1NL.

20 May, 1964: first 432 MHz two-way moonbounce contact — W1BU and KP4BPZ (followed shortly by a number of other contacts from KP4BPZ using the 305 metres (1000 feet) dish at Arecibo, Puerto Rico.

15 March, 1970: first 220 MHz two-way moonbounce contact — WB6NMT and W7CNK followed by a contact next day between WB6NMT and K2CBA.

19 October, 1970: first 2304 MHz two-way moonbounce contact — W3GKP and W4HHK.

30 July, 1972: first 50 MHz two-way moonbounce contact — K5WVX (now K5CM) in conjunction with W5WAX (now K5SW), and WA5HNK in conjunction with W5SXD.

It is always interesting to read about or again remind us who the pioneers were in establishing, what is substantially commonplace today, EME contacts. They still do not come easily, and require a lot of preparatory work and dedication to achieve, so it will never be for the faint-hearted, but obviously the rewards are there for those who make it.

CLOSURE

These notes are being prepared a week in advance of the usual date as I am due to have a period in hospital for an operation on my back for a problem which has been affecting my walking.

Any letters which arrive from now on will have to be included next month unless I am back home within a week in which case I might be able to make the deadline. However, in the meantime, all the best with the winter time DX which you should be experiencing as you read these columns.

Closing with the thought for the month: *"If you don't get everything you want, think of the things you don't get that you don't want."* 73. The Voice in the Hills.

AR

Don't miss the VHF/UHF Story of Firsts from VK6 — August AR.

TEST EQUIPMENT

Melbourne's largest range of secondhand:

Hewlett Packard
Tektronix
Marconi
Solartron
Boontoon
BWD
Bruel & Kjaer

Oscilloscopes, sig gens, spectrum analysers, multi meters. Wide range of valves, coaxial connectors and test accessories. Repairs and service to all makes and models.

ELECTRONIC BROKERS AUSTRALASIA

20 Cahill St, Dandenong
793 3998 AR85

ATN ANTENNAS

HAVE A COMPREHENSIVE RANGE OF ANTENNAS TO SUIT AMATEURS, CBers and SWLers.
OUR 13-30-6 & 13-30-8 LOG PERIODICS PROVIDE CONTINUOUS COVERAGE FROM 13-30MHz & REPLACE OUTDATED TRI-BANDERS. ALSO USABLE WITH TUNER ON LOWER FREQUENCIES!!

- 3, 4, 5 & 6 el on 27MHz
- 5, 8 or 11 el on 6m
- 6 models on 70cm
- 11 & 15 el on UHF CB
- Couplers for Stacking 2, 4, 6 or 8 antennas
- T2FD Wide Band HF Omni-directional
- Insulators & Baluns
- Monobanders for 14, 21 or 28MHz
- 8, 11, 13 or 16 el on 2m
- ATV Repeater
- High Gain for VHF & UHF TV
- OSCAR Satellite Kits
- Aluminium Lattice Guyed Towers
- MIRAGE 6, 2 & 70cm Amplifiers

Write for our latest Catalogue.

ATN Antennas
56 CAMPBELL STREET, BIRCHIP, VIC. 3483
Phone: (054) 92 2224

For QSL Cards
Phone (03) 527 7711

Williams Printing Service Pty Ltd

12 William Street,
BALACLAVA 3183
AR85

CONTACT US FOR QUOTES

bankcard welcome here

A Call to all holders of a

NOVICE LICENCE

Now you have joined the ranks of Amateur Radio, why not extend your activities?

THE WIRELESS INSTITUTE OF AUSTRALIA
(N.S.W. DIVISION)

conducts a Bridging Correspondence Course for the AOCP and LAOCP Examinations.

Throughout the Course, your papers are checked and commented upon to lead you to a SUCCESSFUL CONCLUSION.

For further details write to:
THE COURSE SUPERVISOR, W.I.A.
P.O. BOX 1066,
PARRAMATTA, NSW 2150 AR85

AMSAT AUSTRALIA

Colin Hurst VK5HI
8 Arndell Road, Salisbury Park, SA 5109

NATIONAL CO-ORDINATOR
Graham Ratcliff VK5AGR

INFORMATION NETS

AMSAT AUSTRALIA
Control: VK5AGR
Amateur Checkin: 0945 UTC Sunday
Bulletin Commences. 1000 UTC
Winter: 3.685 MHz Summer: 7.064 MHz

AMSAT PACIFIC
Control: JA1ANG
1100 UTC Sunday
14.305 MHz

AMSAT SW PACIFIC
2200 UTC Saturday
21.280/28 878 MHz

Participating stations and listeners are able to obtain basic orbital data including Keplerian elements from the AMSAT Australia net This information is also included in some WIA Divisional Broadcasts

ACKNOWLEDGEMENTS

Contributions this month are from Bob VK3ZBB and UoSAT Oscar 9 Bulletin 126.

AMSAT-AUSTRALIA NEWSLETTER

Graham VK5AGR the National Co-ordinator of AMSAT-Australia is now producing a monthly newsletter containing updated satellite news, orbital predictions, Keplerian data and operating hints and techniques. The objective of the newsletter is to keep the amateur populace informed on the latest information available and to realise funds for the funding of projects or the purchase of an item/s of hardware for a future amateur satellite project, eg Phase-3C, Phase 4 or whatever. The cost of the Newsletter is $15 and cheques made payable to WIA (SA Division) should be forwarded to Graham VK5AGR QTHR.

The following news items are direct from the UoSAT Bulletin-126 17th May 1985.

ANNIVERSARY

Tuesday 14th May last week saw the anniversary of the successful recovery of the UoSAT-2 spacecraft following the communications problems experienced just after launch on 1st March 1984. UoS dedicated 14th May to the memory of Finn Stollstrup OX3FS, who assisted in the recovery and who was, sadly, killed shortly after.

MILESTONE

UoSAT-OSCAR-9 passed the 20,000 orbit mark on Tuesday 14th May — obviously an auspicious date!

PACSAT

VITA has received some 'start-up' funds from the Hoover Foundation to initiate a major fund-raising activity to support the PACSAT mission. $30,000 has been made available to employ the services of a fund-raising group — TAFT.

JAS-1

The April 1985 (No 4) issue of the Japanese "CQ Ham Radio" journal has some details of the user interface for the JAS-1 satellite, including a sample message using the digital communications system on the spacecraft.

UoSAT-OSCAR-11 OPERATIONS

Spacecraft engineering data surveys and 2400/4800/9600 BPS AFSK transmission tests on 435MHz have continued this week — with good result at 4800 BPS.

The spacecraft has been allowed to spin-up to a Z-spin period of 47 seconds and modified magnetorquing algorithms generated by Stephen Hodgart are being assessed which should, hopefully, minimise the introduction of unwanted libration during these manoeuvres. The de-spin manoeuvres have been taking place in range of UoS so that their effect can be monitored closely. However, this generally means that the orientation of the spacecraft to the local geomagnetic field vector is not optimum for such manoeuvres and, as was seen last November, some unwanted component torques are also generated. These undesirable torque components have maximum effect when the spacecraft is spinning at very slow rates and tend to introduce excessive libration — sometimes going so far as to push the spacecraft over and out of lock! The long-term solution is to execute these manoeuvres, using the OBC, when the spacecraft and geomagnetic field vector are optimally aligned — probably out of range of UoS. This will complicate the data collection slightly and requires some further OBC software development but should effect the attitude control manoeuvres with minimal risk of increasing libration and losing gg-lock.

Revised software has been uploaded into the DCE this week by NK6K with a test message sequence. A greater amount of 145MHz downlink time is now scheduled for the DCE.

The telemetry clock on UO-11 has been reset twice since launch and appears occasionally to 'glitch'. We are not sure at present why this occurs, but it is under investigation. We intend to reset the clock once more soon.

INFORMATION FOR 'NEWCOMERS'

In recent weeks I have received a number of letters from newcomers to the amateur satellite ranks enquiring about information and literature pertaining to satellite activity.

As a reference text the following publication is highly recommended, and is priced at about $16 through the WIA.

'The Satellite Experimenter's Handbook'
by Martin Davidoff K2UBC
Published by The American Radio Relay League. This publication may be available through your WIA Divisional Office. If not contact AMSAT-Australia.

The following organisations also provide literature and information specifically for the amateur satellite communicator. With the value of the Australian dollar depreciating against overseas currencies, subscription rates for the below mentioned groups may not seem as attractive as in recent years. Therefore if your funds are limited I suggest to you the AMSAT-Australia Newsletter mentioned previously in this column as the first priority with membership of AMSAT-UK being the second priority. Membership of AMSAT-UK provides an excellent publication called OSCAR News at least quarterly, with special editions for specific events and launches.

1. AMSAT membership

Those persons wishing to join AMSAT, The Radio Amateur Satellite Corporation based in Washington USA (the parent body of the amateur satellite service) are requested to direct their enquiries to:
AMSAT
PO Box 27
Washington DC 20044

Various categories of membership are available as well as services. These items will be detailed upon receipt of your enquiry.

2. Amateur Satellite Report

This is a bi-weekly newsletter published on behalf of AMSAT. It is mailed first class to all subscribers (AIR MAIL to Overseas). ASR is the update of all satellite activities and events worldwide.

Direct all enquiries to:
Satellite Report
221 Long Swamp Road
Wolcott, CT 06716 USA

3. AMSAT-UK Membership

The English affiliate of AMSAT, AMSAT-UK wishes to advise all intending new members that the correct procedure to join AMSAT-UK is to first write to:

Ron Broadbent G3AAJ
Hon Secretary AMSAT-UK
94 Herongate Road
Wanstead Park
London E12 5EQ

requesting a membership application form and the current subscription rate.

COMPUTER PROGRAMMES

To assist the calculation of the various satellite orbits there are now a number of versions of the Tom Clark W3IWI, ORBIT Programme, available to suit various home computers. If you are personally interested in a suitable programme contact Graham VK5AGR, QTHR supplying a SASE for details.

CURRENT OPERATIONAL SATELLITES

As at the 1st May 1985 the following satellites were still fully operational: Oscar 9, Oscar 10 and Oscar 11.

The following satellites are unfortunately erratic in operation due to their failing batteries: RS5, RS7 and RS8. In respect to the RS Series I will attempt to get a schedule of operational times for inclusion in the next issue.

UPS AND DOWNS

From Bob VK3ZBB we have the latest listings of launches and re-entries.

FROM BOB VK3ZBB

Consideration is being given to the provision of a Transponder operating in the amateur 'S' Band which is 2300 to 2450 MHz. It is suggested that the transponder will be installed in the Phase 3C amateur satellite which should fly in 1986-7.

Obviously potential users of this 'S' Mode will require some experience in the design and development of suitable equipment and it is perhaps fortunate that the USSR is understood to have two satellites operating beacons in this shared frequency band.

Although no details of transmission times etc are yet available the Keplerian Elements for the two satellites have been obtained and, hopefully, will be updated from time to time. These figures will enable amateurs to determine the location of the satellites in the sky and to listen for the beacons on their reported frequency of 2304 MHz.

The Keplerian Elements are:

SATELLITE: Cosmos 1547
Number: 84-033A 14584
Element Set: 559

Epoch	85-103
Epoch Decimal	0 94042977
1st Deriv of Motion	-.00001009 RPD/I
Inclination	83.1767 deg
Right Ascension	114.8966 deg
Eccentricity	0.7157046
Argument of Perigee	318.9628 deg
Mean Anomaly	5.0863 deg
Mean Motion	2.00574 RPD
Orbit Number	753

SATELLITE: Cosmos 1604
Number: 84-107A 15350
Element Set: 281

Epoch	85-101
Epoch Decimal	0.75713789
1st Deriv of Motion	-.00001228 RPD/I
Inclination	62 8725 deg
Right Ascension	232.9319 deg
Eccentricity	0.7289528
Argument of Perigee	318.2842 deg
Mean Anomaly	4.6969 deg
Mean Motion	2.005231 RPD
Orbit Number	380

HAMADS
are a free service for members.

OSCAR 10 APOGEES FOR JULY-AUGUST 1985

DAY #	ORBIT #	APOGEE U.T.C HHMM:SS	SATELLITE CO-ORDINATES LAT DEG	LON DEG	BEAM HEADINGS SYDNEY AZ DEG	SYDNEY EL DEG	ADELAIDE AZ DEG	ADELAIDE EL DEG	PERTH AZ DEG	PERTH EL DEG
1st July										
182	1543	2013:12	-11	249	292	40	307	50	347	65
2nd July										
183	1545	1932:13	-11	240	302	48	321	56	12	65
3rd July										
184	1547	1851:16	-11	230	314	55	339	61	34	61
4th July										
185	1549	1810:17	-11	221	331	60	1	62	51	55
5th July										
186	1551	1729:20	-11	212	353	63	23	60	63	48
6th July										
187	1553	1648:21	-11	202	16	63	41	56	71	39
7th July										
188	1555	1607:23	-11	193	37	59	55	49	78	31
8th July										
189	1557	1526:25	-11	183	52	52	65	42	84	23
9th July										
190	1559	1445:26	-12	174	63	45	73	34	90	14
10th July										
191	1561	1404:29	-12	165	72	37	80	26	95	6
11th July										
192	1563	1323:30	-12	155	79	29	86	18	99	-2
12th July										
193	1564	0103:01	-12	331					262	0
193	1565	1242:32	-12	146	85	21	92	10		
13th July										
194	1566	0022:04	-12	321					266	8
194	1567	1201:34	-12	137	90	13	97	2		
194	1568	2341:05	-12	312			260	-2	271	17
14th July										
195	1569	1120:36	-12	127	96	5				
195	1570	2300:07	-12	303			265	5	276	25
15th July										
196	1571	1039:37	-12	118	101	-3				
196	1572	2219:09	-12	293	263	3	270	13	282	34
16th July										
197	1574	2138:10	-12	284	268	11	275	21	289	42
17th July										
198	1576	2057:13	-12	274	273	19	281	30	298	50
18th July										
199	1578	2016:14	-13	265	279	27	288	38	311	58
19th July										
200	1580	1935:16	-13	256	285	35	297	46	329	64
20th July										
201	1582	1854:18	-13	246	293	44	308	53	354	67
21st July										
202	1584	1813:20	-13	237	303	51	323	60	21	66
22nd July										
203	1586	1732:22	-13	228	316	58	344	64	42	61
23rd July										
204	1588	1651:24	-13	218	335	64	8	64	57	55
24th July										
205	1590	1610:25	-13	209	360	66	31	61	68	47
25th July										
206	1592	1529:28	-13	199	25	64	48	56	76	38
26th July										
207	1594	1448:29	-13	190	44	59	61	49	82	30
27th July										
208	1596	1407:32	-13	181	58	52	70	41	88	21
28th July										
209	1598	1326:33	-14	171	68	44	78	33	93	13
29th July										
210	1600	1245:36	-14	162	76	36	84	25	98	5
30th July										
211	1602	1204:37	-14	153	83	28	90	17	103	-3
211	1603	2344:08	-14	328					261	4
31st July										
212	1604	1123:38	-14	143	88	20	95	9		
212	1605	2303:09	-14	319					266	12
1st August										
213	1606	1042:41	-14	134	94	11	100	1		
213	1607	2222:12	-14	309			260	1	271	20
2nd August										
214	1608	1001:42	-14	124	99	4				
214	1609	2141:13	-14	300	258	-2	265	9	276	29
3rd August										
215	1611	2100:16	-14	290	263	6	270	17	282	37
4th August										
216	1613	2019:17	-14	281	268	14	275	25	289	46
5th August										
217	1615	1938:20	-14	272	273	22	281	33	299	54
6th August										
218	1617	1857:21	-14	262	278	31	289	41	312	62
7th August										
219	1619	1816:23	-15	253	285	39	298	50	333	67
8th August										
220	1621	1735:25	-15	244	293	47	310	57	2	70
9th August										
221	1623	1654:26	-15	234	304	55	327	63	30	67
10th August										
222	1625	1613:29	-15	225	319	62	351	66	50	61
11th August										
223	1627	1532:30	-15	215	341	67	17	66	64	54
12th August										
224	1629	1451:32	-15	206	8	68	39	62	73	45
13th August										
225	1631	1410:34	-15	197	33	64	55	55	80	37
14th August										
226	1633	1329:36	-15	187	51	58	66	48	86	28
15th August										
227	1635	1248:38	-15	178	64	51	75	40	91	20

SATELLITE ACTIVITY FOR PERIOD 1-28 FEBRUARY 1985

Number	Name	Nation	Date of Launch	Period mins	Initial Data Apog km	Perig km	Incl deg	Remarks
1985								
019A	Cosmos 1632	USSR	Mar 1	89.2	263	206	72.9	
020A	Cosmos 1633	USSR	Mar 6	97.6	654	633	82.5	
021A	GEOSAT	USA	Mar 13	100.6	814	757	108.1	
022A	Cosmos 1634	USSR	Mar 14	104.8	1008	957	82.9	
023A	Cosmos 1635	USSR	Mar 21					
023B	Cosmos 1636	USSR	Mar 21					
023C	Cosmos 1637	USSR	Mar 21					
023D	Cosmos 1638	USSR	Mar 21					
023E	Cosmos 1639	USSR	Mar 21					
023F	Cosmos 1640	USSR	Mar 21					
023G	Cosmos 1641	USSR	Mar 21					
023H	Cosmos 1642	USSR	Mar 21					
024A	Ekran 9	USSR	Mar 22					
025A	Intelsat F10	IISO	Mar 22					
026A	Cosmos 1643	USSR	Mar 25					

LAUNCHES

RETURNS: During the above period 12 objects decayed, including Satellite 1966-044A Explorer 32 on 22 February.

SATELLITE ACTIVITY FOR PERIOD 28 FEBRUARY-29 MARCH 1985

Number	Name	Nation	Date of Launch	Period mins	Apog km	Perig km	Inclin deg	Remarks
1985								
011A	Cosmos 1627	USSR	Feb 1	104.8	1015	955	82.9	
012A	Cosmos 1628	USSR	Feb 6	92.2	412	353	72.9	
013A	Meteor 2-12	USSR	Feb 6	104.0	412	936	82.5	
014A	USA 9	USA	Feb 8					
015A	ARABSAT I		Feb 8	1390	35849	33911	0.2	Ariane Vehicle
015B	SBTS 1		Feb 8	1437	35840	35779	0.1	do
016A	Cosmos 1629	USSR	Feb 21					
017A	Cosmos 1630	USSR	Feb 27					
018A	Cosmos 1631	USSR	Feb 27					

RETURNS: During the above period 25 objects decayed, including 1985 002-A COSMOS 1616 on 4th March and 1985-019A COSMOS 1632 on 15 March.

GENERAL INTEREST: 1966-100A AT51. On 12 March at 0219 UTC, this satellite was located at 176.540 degrees with an inclination of 11.704 degrees. Transmit on 136.460 and 137.350 MHz.

Dr Karl Meinzer DK4ZC recently gave talks in Melbourne, Adelaide and Sydney. Karl is a member of the German Satellite Organisation, which was largely responsible for the operation of OSCAR 10. During his talks, Karl demonstrated a hand-held computer for calculating satellite positions. There will be a full story of Karl's talk next month.

KENWOOD

KENWOOD
THE PROFESSIONAL SOLUTION FOR ALL YOUR AMATEUR AND BUSINESS COMMUNICATIONS EQUIPMENT

TRIO-KENWOOD (AUSTRALIA) PTY. LTD.
(INCORPORATED IN N.S.W.)
4E WOODCOCK PLACE, LANE COVE, SYDNEY, N.S.W. 2066.
Ph. (02) 428 1455.

SEE LATEST ISSUE OF AMATEUR RADIO ACTION FOR COMPLETE LIST OF AUTHORISED DISTRIBUTORS AND LATEST PRODUCT INFORMATION

CHIRNSIDE ANTENNAS

MULTI BAND YAGI'S

CA-33 20/15/10m 4.2m Boom 3el $299
CA-35DX20/15/10m 6m Boom 5el $359
CA-35LX20/15/10m 7m Boom 5el $399
CA-42 15/10m Nov. 4m Boom 4el $169
CA-52 15/10m Nov. 6m Boom 5el $219
(CA-52 has 4 active el on each band)

MULTI BAND VERTICAL

CA-5SS 5 BAND FREE STANDING $119

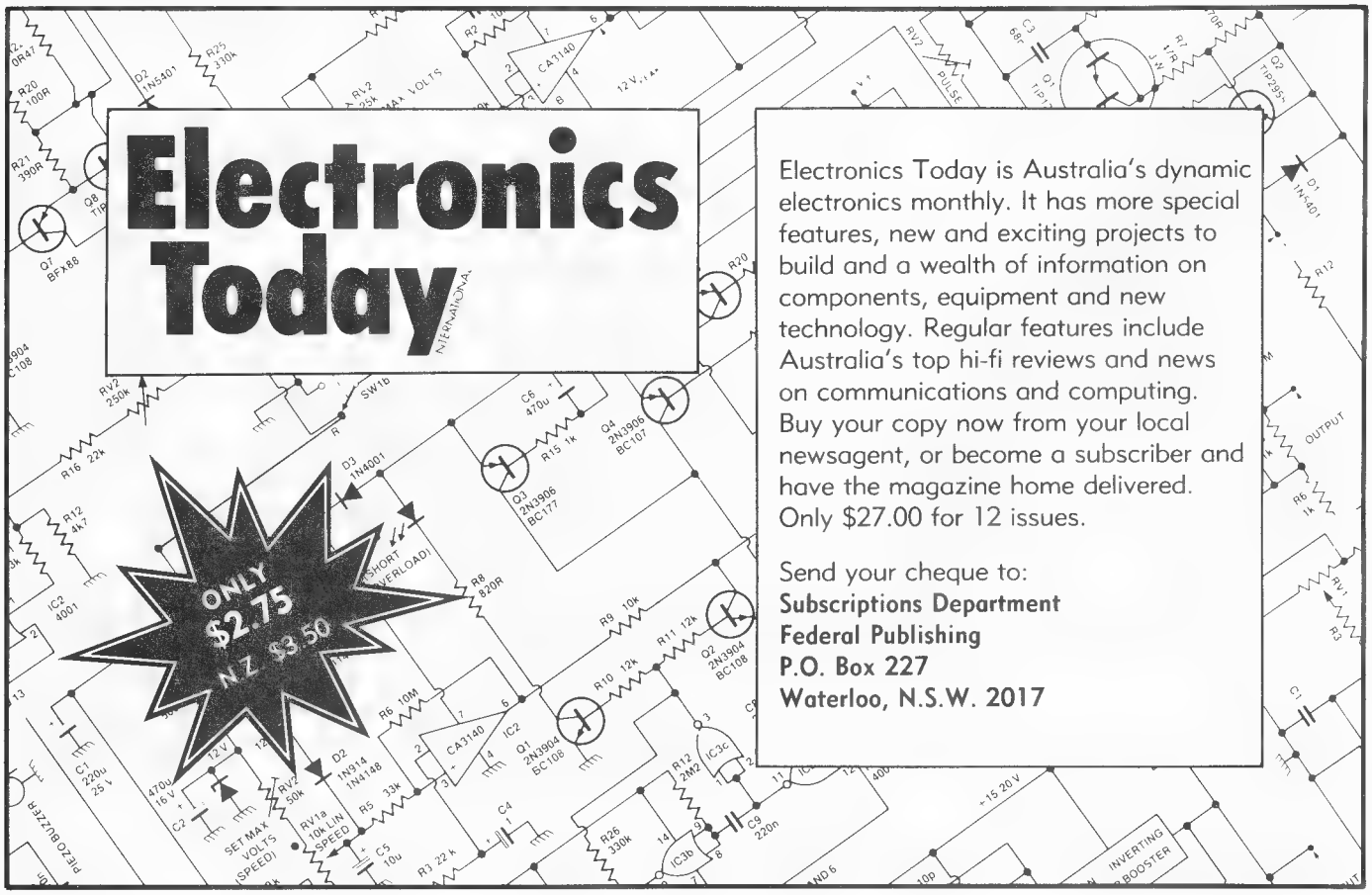
MOBILE HELICALS
ALL 2 METRES LONG *(all have fully adjustable tips)*

CA-80m $30
CA-40m $30
CA-30m $29
CA-20m $29
CA-15m $29
CA-10m $29
CA-5/8 2m heavy duty $13
CA-10/11m 4' heavy duty $20

MONO BAND YAGI'S ALSO AVAIL.

(at special prices)
Also available from Andrews Communications Systems — Sydney.

MAIL ORDERS TO:
CHIRNSIDE ANTENNAS
26 EDWARDS RD., CHIRNSIDE PARK, VIC. 3116 *PH (03) 726 7353*


Electronics Today
INTERNATIONAL
ONLY $2.75 N.Z. $3.50
Electronics Today is Australia's dynamic electronics monthly. It has more special features, new and exciting projects to build and a wealth of information on components, equipment and new technology. Regular features include Australia's top hi-fi reviews and news on communications and computing. Buy your copy now from your local newsagent, or become a subscriber and have the magazine home delivered. Only $27.00 for 12 issues.
Send your cheque to:
Subscriptions Department
Federal Publishing
P.O. Box 227
Waterloo, N.S.W. 2017

Special 75th Anniversary

Victorian Division — VK3

Feature

VICTORIA 150
GROWING TOGETHER 1984-5

Jim Linton VK3PC
4 Ansett Crescent, Forest Hill, Vic. 3131

VICTORIA: PREMIER DIVISION

This 75th anniversary gives us a chance to look back on the achievements of pioneers and reflect on what the future may hold. One thing that must be stated early is that much of our history remains unrecorded.

The date 30 November 1911, is accepted as when a public meeting was convened by P H McElroy to form an "Amateur Wireless Society of Victoria" (Reference "The Argus" newspaper 1.12.1911).

However there's some doubt as to whether a prior organisation existed and the 1911 meeting was to both form an Amateur Wireless Society and amalgamate an exising body of wireless experimenters.

It would be desirable if someone could shine some light on this mystery.

There's no doubt about the role Victoria has played, and continues to play in the affairs of our hobby, and developments in the science of wireless.

In the late 1880s George William Selby of Malvern, Vic was experimenting with radio waves, and progressed to wireless telegraphy.

The turn of the century saw an increase in wireless experimentation.

H W Jenvey at Queenscliff, Vic, in 1901 made wireless telegraphy contact with HMS St George, the escort cruiser for a state visit by the Duke and Duchess of Cornwall.

In 1910, G A Taylor of Vic successfully demonstrated that pictures could be sent by wireless.

Exploring further the use of wireless, in 1911 he conducted the first communications between moving trains in Australia, in 1912 was the first to fly a model airship by remote control, and 1913 saw him being the first to fire a gun by wireless.

The immediate post-World War 1 era was a period of great improvements in the science of wireless.

Playing a key role in reviving the Institute after the war was Victor Nightingall.

Australia retained its leading status in experimentation with history making contact to the United Kingdom and the USA.

Max Howden VK3BQ is forever associated with the startling developments of world-wide communication in the 1920s. His exploits have been well covered in a previous historical article.

Others from Victoria involved in this era include Ross Hull and Howard Kingsley Love. This pair had dominant roles in the Institute, being jointly involved in early publications about wireless (Reference AR August 1970).

The Victorian Division in 1921 began transmitting in telephony news bulletins nightly on 200 metres.

HK Love, President of the Victorian Division, heard transmission from high powered US commercial stations in December 1922.

Being convinced amateur stations on the Pacific coast of the US might be heard he proposed and organised Trans-Pacific tests.

He was appointed head of a special committee to organise the tests (Reference AR October 1983).

Winner of the tests was Max Howden who was congratulated by the whole radio fraternity.

The following period saw broadcasting start, and a growing interest in the medium of wireless.

Moving ahead to 1933, the publications era of the division began as a result of the President, Harry Kinnear, suggesting the printing of a magazine. This key figure in Institute affairs was also the founding editor.

Up until February 1972, the division produced the magazine before handing it over to the Federal Officer due to the financial burden it put on the division.

AR magazine was maintained during World War 2 and sent to radio amateurs serving their country.

The full story about AR magazine can be read in an article entitled "Golden Jubilee" in AR October, 1983.

It is probably timely at this point to mention that the "Premier Division of The Commonwealth" title came to light during interviews with Harry Kinnear and the 1935-41 President, Bill Gronow.

Victoria led the way up until WW2 and forged ahead in the post war years.

The business sense of Kinnear and Gronow was used to benefit the division in the area of war surplus disposals equipment.

This brief history of the division merely attempts to cover the first 50 or so years.

It does not adequately cover the parts played by Victor Nightingall or H K Love.

The formation and activities of the Wireless Reserve is another omission.

There were of course other events and personalities which could have been mentioned — for instance the Exhibitions in Melbourne, 1948, 1949 and 1950.

These public displays of amateur radio will hopefully be written up during the WIA 75th year.

The remaining 25 years of history is well overdue to be recorded in an article.

Those involved in this period are more qualified to accurately put together a record of events and complete the division's history.

By deliberate action good records of events in the years 1983-85 exist within the Victorian Division Council minutes and AR magazine.

AR

FURTHER READING:

An article "A Bit of Victorian History" written by John Adcock VK3ACA, the Victorian Historical Officer, was published in AR magazine in December 1980.

This records the founding of the Amateur Wireless Society of Victoria, which later changed its name to the Wireless Institute of Australia.

It uses a tape recording of a Vic Div General Meeting in December 1979, which was attended by two founding fathers. They were W K Witt and T F O'Shannessy, both who had been at the 1911 foundation meeting.

GEORGE WILLIAM SELBY:

AN EARLY WIRELESS PIONEER

His activities and considerable achievements are clearly remembered by Mr Selby's youngest son, 93-year-old Alexander (Dick) Selby. A remark by him last November at a Bird Observers' Club meeting in Echuca about his father experimenting with wireless at the same time as Marconi was overheard by a WIA shortwave listener. The lead was given to the WIA which tracked him down living with his niece, Jenny Johnson at Gunbower.

Mr Selby has been deaf from an early age, but through letters and other material has supplied all of the information for this story.

G W Selby became interested in electricity when he read an article in "Every Boy's Annual" in 1872, which told how to make a galvanic battery. He was about thirteen at the time, and when sent to England the following year to complete his education, he managed to continue experimenting.

However G W Selby's father had little belief in electricity and sent a letter to the English school master, asking him not to encourage George in electrical matters, as it may be many years before anyone could make a living out of it. But the master presented the letter to George as he graduated from the school.

Mr Selby had returned to Melbourne and was working as a clerk when news was received that Alexander Graham Bell had invented the telephone. He was inspired and soon after built a telephone himself. Mr Selby then established his own business in Queen Street, Melbourne, as an electrical engineer, with accountancy on the side.

His interest in experimental activities gravitated to wireless telegraphy, and to increase his knowledge of this then practically unknown science, taught himself French and German so he could read foreign technical papers. His experiments were developed to the extent of enabling him to transmit radio waves through a solid wall.

This was in the late 1880s and claimed to have been the first controlled radio waves in Australia.

In 1896, he sent a wireless telegraphy message from Brighton to Caulfield (Victoria), and continued these experiments until at least 1900. His assistant in that particular experiment was a Calder Oliver of Brighton, believed to have been involved because of his Morse code knowledge — nothing more is known about him.

Mr Selby had a seven acre block of land on the corner of Alma Road and Khartoum Street, and that was where he transmitted from. He also pioneered the manufacture of X-ray equipment, and owned and operated one of the first X-ray units in Melbourne. The equipment he couldn't buy, he made himself, including the blowing of glass tubes.

In 1896 his equipment was used to locate a bullet in a man's jaw. The medical profession, including the British Medical Association (renamed the Australian Medical Association) was eager to learn about X-rays and turned to Mr Selby for help.

G W Selby also gave his name to the Dandenong Ranges township of Selby, as he was a first councillor for the Shire of Ferntree Gully.

Among his life's achievements include 59 years continuous service as auditor for BHP, with his retirement being in December 1945.

Should any reader have further information on Mr Selby, please pass it on to Jim Linton VK3PC, who's still researching historical details.

APPARATUS DESIGNED BY G W SELBY IN THE ARGUS 29/4/1899

The sending apparatus is a Hertz oscillator, comprising two brass balls or spheres and a powerful battery and induction coil.

While the transmitter theory is easy to understand — radiation from the spark gap directly fed to a wire antenna — receiving needs a little explanation.

G W Selby in The Argus article, later reproduced in The Radio Experimenter, 15 February 1924, said: "The Coherer is an extremely sensitive detector of the kind of electric waves discovered by Hertz.

"This instrument consists of a few metal filings contained in a gap between two pieces of metal, called the pole pieces, which have connected to them longer or shorter collecting wires, and which are respectively joined to the two terminals of a Lechlanche cell or electric-bell battery.

"The sensitiviness of this arrangement to electric waves or jerks, is extraordinary, and the instrument works in this way.

"So long as no waves reach the filings the circuit is practically open and no current passes across the gap, but the instant the waves arrive the filings become a conductor and allow the current from the single cell to flow.

"It is, in fact, a kind of electric-bell push or telegraph key, worked by invisible waves instead of by a human finger."

The early descriptive diagrams

He said many experimenters in different countries worked at improving and suggesting improvements to the apparatus.

Among those to be specially mentioned are Drs Lodge and Jackson, in England, Professor Bose, in Calcutta, Nicola Tesla in America, Popoff in Russia, Righi and Marconi in Italy and England.

"I can lay claim to being a fellow-worker in Melbourne," said Mr Selby.

In the diagram of the receiving apparatus shown in this article, the relay activates another battery with sufficient power to work a Morse sounder or ink-writer.

The code could be copies by ear as a series of taps, or rattles, of longer or shorter duration, or as dashes and dots on the tape of an ink-writer.

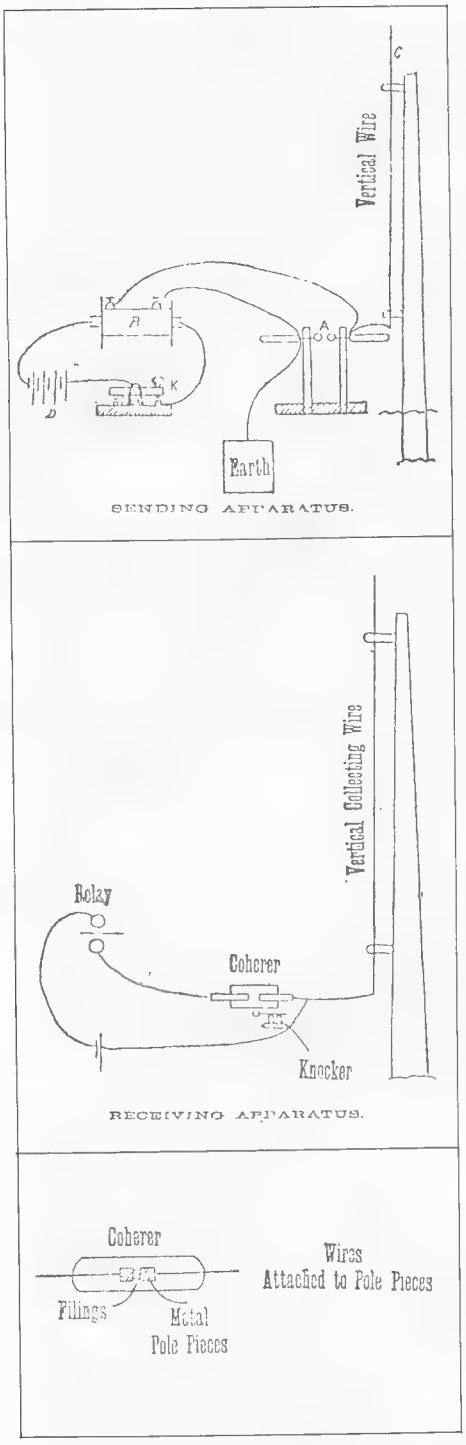
The Knocker shown in the diagram is an ordinary electric bell minus the bell. It is in the same circuit as the Morse sounder or ink-writer.

The purpose of the Knocker is to tap the Coherer to cause the filings to de-cohere and open the circuit.

Mr Selby said Dr Lodge had suggested in 1894 the use of an electric bell for this purpose.

In a publication called "Salute to the X-Ray Pioneers of Australia" published by W Watson & Sons Ltd, Australia & New Zealand, an interesting account of Mr Selby is recorded.

It said: *"Long before Marconi sent the first*



recorded that the learned gentleman suffered pain in a certain part of his anatomy.

Exceedingly wrath, he sought the culprit, and extracted a confession from young Selby, who was reported to the headmistress. That lady punished the youthful offender by withholding from him four prizes that were due to him at the end of the term. Considering this penalty too drastic, the master took the lad aside, forgave him and presented him with a book. It was this book which fired the young scientist to embark upon his electrical experiments. Although his parents greeted his decision in a lukewarm-manner, relatives and friends encouraged him to proceed.

As far back as 1878, G W Selby was experimenting with coils and tubes. In 1880 he exhibited a number of Crookes Radiant Matter Tubes before an interested audience at the Royal Society's Conversazione held at Melbourne.

There is still to be seen a programme printed for the Science and Arts Conversazione held at Melbourne Town Hall on 24th September 1885. In this it is announced that G W Selby would demonstrate:-

Crookes Radiant Matter Tubes.
Vacuum Tubes.
Induction Coil.
Electric Transmission of Power.
Dynamo Electric Machines.

TEN YEARS BEFORE ROENTGEN

Selby was actually operating a Crookes tube 10 years before Roentgen discovered X-rays in 1895 by means of a similar tube.

Had it not been for the fact that G W Selby was ill of scarlet fever when the announcement of the revelation of X-rays reached Australia, it is possible he would have preceded Professor Lyle in the verification of Roentgen's discovery. However, upon recovery early in 1896, Selby set himself to produce X-rays along lines indicated by the great German scientist, losing no time in examining the Crookes tubes still in his possession. Luckily, some were functioning, and he already had the rest of the apparatus required for a test.

While pondering a suitable subject it occurred to him that there might possibly be a rat caught in the trap set in the cellar of his Malvern home. Descending, he found his hopes realised, for there was a rat ensnared in the trap. Here then, was a body for his first successful radiograph. A reproduction of this radiograph was published in the "Australasian" of 16th May 1896.

Reproduction of rat radiograph

From that time onwards, G W Selby carried out in an honorary capacity, X-ray work for several Melbourne doctors and hospitals.

signal hurtling across the Atlantic, Selby was engaged in wireless experiments which were the subject of an article published in the 22nd November 1897 issue of the Australasian.

"Two months later he received a letter from Professor Oliver Lodge referring to wireless developments he had communicated to the distinguished English scientist.

"It was Selby who transmitted the first wireless signal in Australia."

His choice of electricity as a hobby arose out of an implement no more significant than a tin tack. It happened in this manner. When a boy at school he was selected to carry out the time-honoured prank of placing a tack in the master's chair. The trick succeeded so well that it is

TELEVISION: A PIONEER REMEMBERS

After World War 2 the Australian Government did not want experimenters dabbling in television, but that didn't stop the pioneering spirit of a few in our fraternity. One of them, Len Moncur VK3LN, remembers the saga of trying to get an "Iconoscope" — the then TV camera tube only available from the United States.

He said: *"I was hostile over the government's action at the time in refusing to allow us to buy an Iconoscope.*

"The government didn't want us (experimenters) creating a public demand for television — there were more important things needed like housing and post-war reconstruction."

Len graduated from shortwave listening to take out his licence at the age of 18 in 1928. He said it was a logical progress from radio to TV experiments in his early days.

In fact after reading a few overseas articles on Logie Baird scanning discs Len began TV transmissions in 1932.

"The TV signal at first was literally from one side of the room to the other.

"There were a couple of others experimenting also in New South Wales and South Australia, and I used about 56MHz," said Len.

In 1934 he decided to visit the USA, and meet some of the many DX friends he had made.

He said: *"I bought an A Model Ford coupe, and with QSLs in hand visited 83 amateurs.*

"The QSLs were an open sesame to everything."

While a visiting one shack he was asked by another station on air what route he would be taking. The next day while driving down the highway he heard a car horn sending CQ in Morse and stopped. One amateur had sat on the side of the road sending CQ to every passing car with a Californian numberplate.

The hospitality was running hot for Len and he was invited home. About 10pm the amateur showed me his TV set, and I watched amazed at a commercial TV programme, Len recalled.

"I flippantly said I would like that (TV) in Australia," he said. Immediately, the amateur offered me the TV set, but I politely declined saying it would not fit in my coupe.

To Len's surprise the amateur had the inner workings of the TV set sitting on the back seat ready for his departure next morning.

On arriving back in Sydney, almost penniless, ship's passenger Mr Moncur posed a problem for a customs officer. The words "television set" did not appear in the customs book of words.

Len said the officer asked him which were the most important parts in the TV set, and then fetched a set of tools.

"You hack out the parts you want," said the officer.

Len said: *"Then with great ceremony the remains were dropped into the harbour."*

The most important parts obtained by Len included a state of the art Baird scanning disc, which helped further his TV experiments.

During WW2 Len served his country's war effort like many radio amateurs, with his involvement being in the field of radar installation and the training of others.

After the war he wanted to further his TV experiments by using an Iconoscope.

About 1948 an exhibition was to be held in Melbourne and the WIA was invited to put up a stand. It was suggested by an organiser, a Reverend Elliot, that there be a display of amateur TV. Len said he could oblige — if he had an Iconoscope, but these were not available in Australia. However Rev Elliot arranged for the Mission of Seaman in New York to give two Iconoscopes to the Mission of Seamen in Melbourne. If all went well they were due to arrive about two weeks before the second exhibition in 1949.

Photograph courtesy Herald-Sun Melbourne.

Len and his XYL Phyl working on a 2m rig in 1958.

Len kept track of the important cargo via amateur radio, and great publicity was being made of how TV would be shown at the exhibition.

Alas, the Iconoscopes got lost, and on inquiry customs said they would not be allowed into the country because the Iconoscopes were not unsolicited gifts.

They finally arrived — the Monday morning after the exhibition finished.

At the 1950 exhibition the general public was finally shown the wonder of television — this was six years before commercial TV started in Australia for the Melbourne Olympics.

Len found himself giving a 10 minute lecture on how TV worked.

"I did great magical things like turning the picture upside down, he said. On one night there were three 18-year-old girls among the crowd and two of them described their girlfriend as being most photogenic on TV. The girl asked Len if she could see herself on TV, and Len replied *"only if you can run fast enough."*

The crowd urged her to give it a go. She ran between the camera and TV screen and missed herself every time. Len said that incident made him understand that not one of the crowd which had heard his lecture about TV knew what he was trying to tell them.

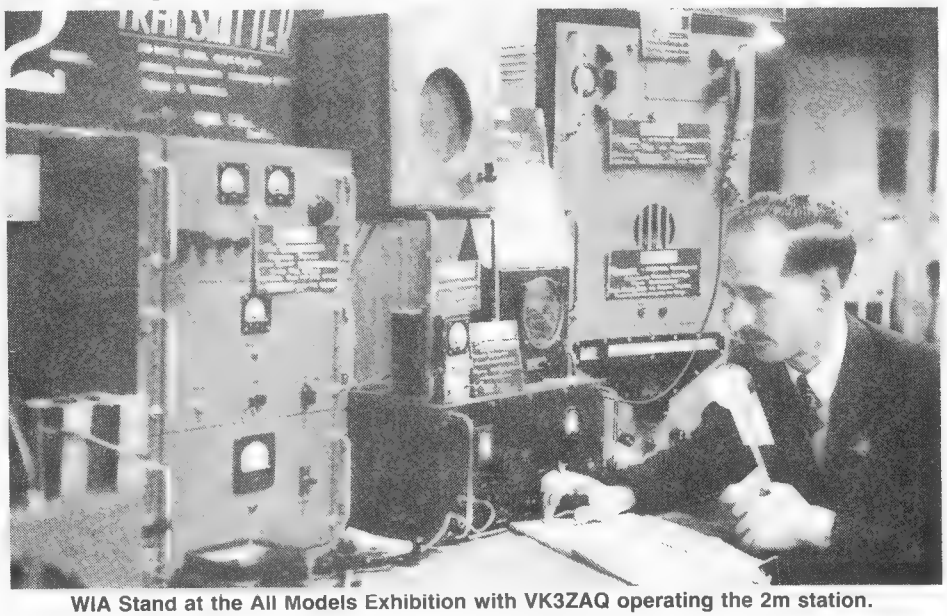
When commercial TV began Len lost interest in the mode of transmission which had then ceased to be experimental.

Len's ambition is to travel and this month is in China with his wife Phyl. It's their 97th country, and they hope to notch up 100 countries with a European holiday next year, or as Len puts it: *"Our DXCC of countries."*

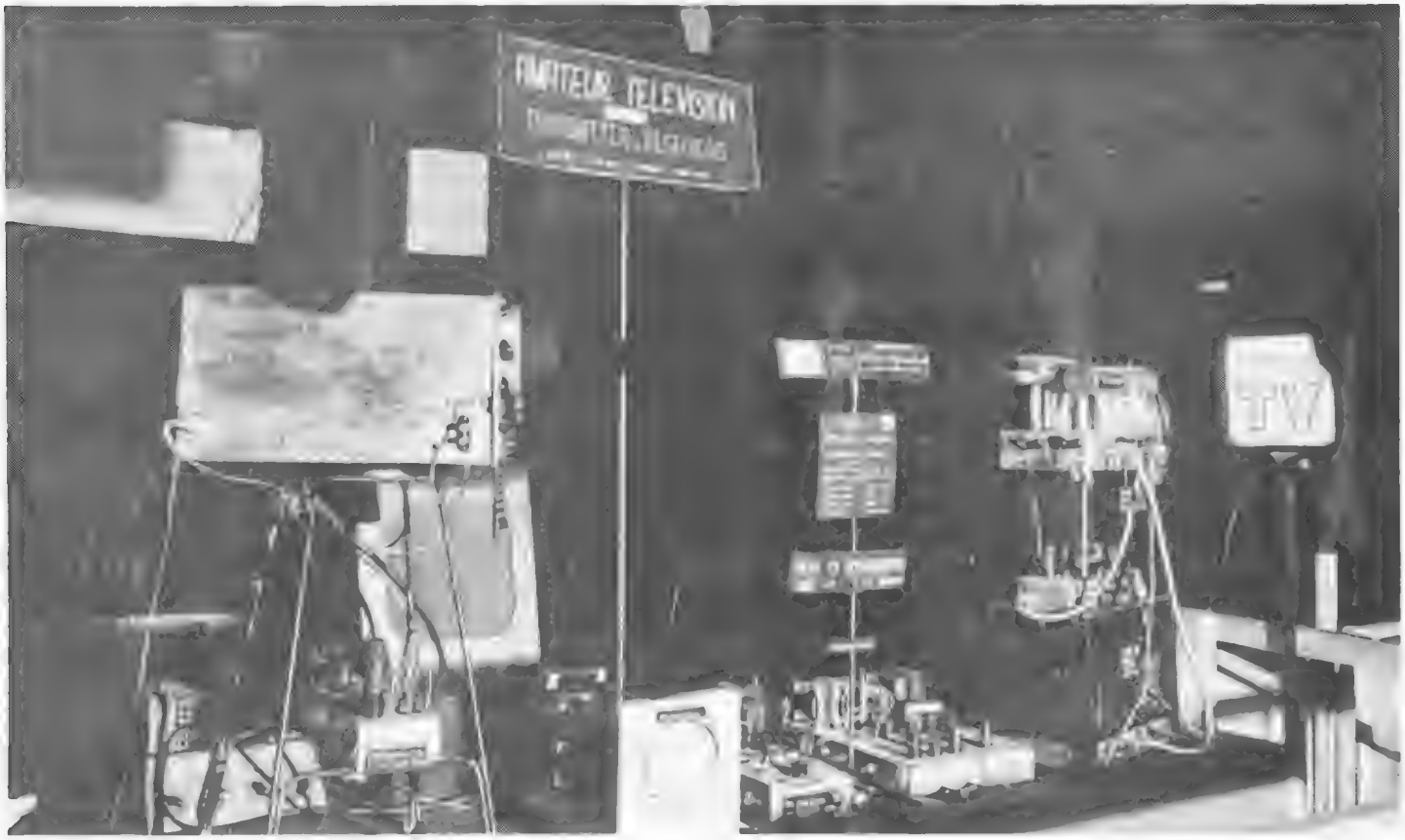
Making films is another of Len's activities and he has won several awards, including those from the Melbourne Film Festival. One film was an animation of the opera Madame Butterfly using dolls which required their physical movement (placement) by hand and many thousands of camera shots. The cruel treatment of golf balls by inefficient golfers was the theme of another animation. It used 100 or more golf balls with pipe cleaners for arms and legs, and again using the same technique brought them to life.

Len Moncur has a drive to do something nobody else has done — he gives it a go — which is the mark of a true experimenter and pioneer.

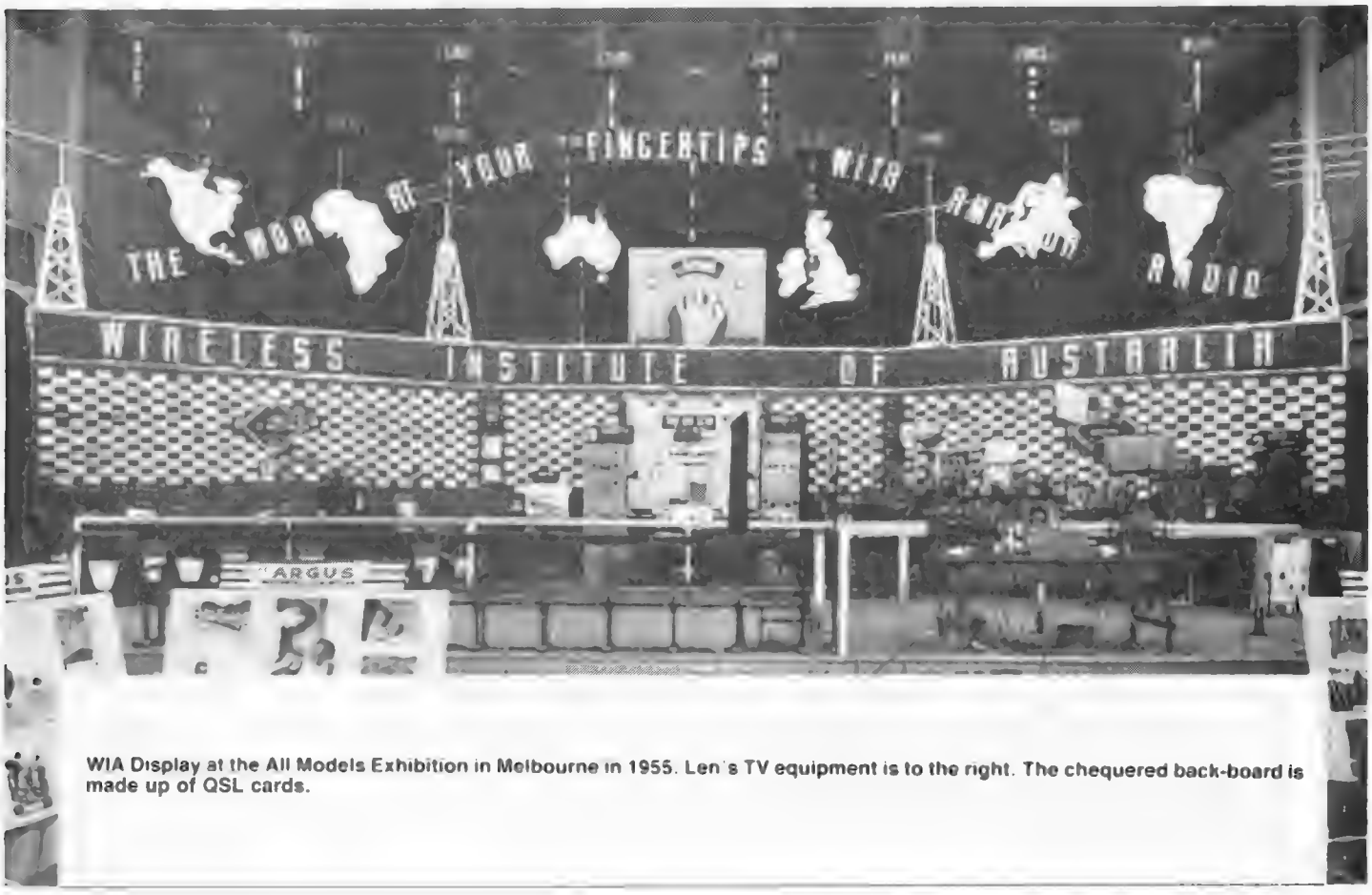
AR



WIA Stand at the All Models Exhibition with VK3ZAQ operating the 2m station.



The Equipment used by Len in 1949.



WIA Display at the All Models Exhibition in Melbourne in 1955. Len's TV equipment is to the right. The chequered back-board is made up of QSL cards.

SW Gadsden 1930-31

Harry Kinnear 1934-35

WIA VICTORIAN DIV

David Wardlaw 1959-63

Sid Clark 1977-78

Bert Semmens 1950-52

1911-13	M A K Rya
1913-15	Sidney T V
1915-19	Institute in
1919-20	Victor Nigh
1923-25	Howard Ki
1929-30	Howard Ki
1930-31	S W Gads
1933-34	George Th
1934-35	Harry Kinn
1935-41	William Gr
1941-45	Herb Steve
1945-47	Harry Kinn
1947-50	Bob Cunni
1950-52	Bert Semn
1952-57	Gordon De
1957-59	Fred Bail
1959-63	David War
1963-65	John Battr
1965-68	Ken Pinco
1968-70	Keith Roge
1970 (part)	Ken Sedd
1970-72	Jim Lloyd
1972-74	Peter Willi
1975 (part)	Russell Ke
1975 (part)	Ian Moreh
1975-77	P Fitzhe
1977 (part)	Alf Kerr
1977-78	Sid Clark
1978-80	Eric Bugg
1980-81	Alan Nott
1981-82	Peter Drur
1982-83	Alan Noble
1983-85	Jim Linton

A gap in informati 1921-23 and 1926-2 photographs of all past with the aim of display the Divisional Headqua about either the fou Ryan, or P H McElr inaugural meeting or founding Treasurer. P able to help with eve about these founding

Bill Gronow 1935-41

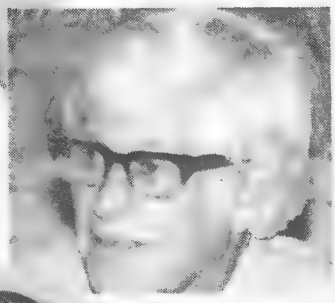
Bob Cunningham 1947-50

VISION PRESIDENTS

Ryan
T V Cole
e in abeyance
Nightingall
d Kingsley Love
d Kingsley Love
adsden
Thomson
Kinnear
Gronow
tevens
Kinnear
unningham
emmens
n Dennis
ail
Wardlaw
attrick
ncott
Roget
eddon
yd
Williams
l Kelly
rehouse
e pert
r
ark
ugbee
oble
Drury
oble
nton

mation exists in the years 6-28. A project to collect past Presidents is continuing, playing them permanently at dquarters. Nothing is known founding President, M A K cElroy who convened the on 30/11/1911 and was r. Perhaps a reader may be even the barest of details ing members of this division.

AR



Ken Seddon part 1970

Alan Noble 1980-81 & 1982-83

Jim Linton 1983-85

VK3 WIA NOTES

VICTORIA 150

PRESIDENT'S REPORT 1984/85

Delivered at the Wireless Institute, Victorian Division, Annual General Meeting, Wednesday, 8 May 1985

MEMBERSHIP

The number of WIA members continues to increase in Victoria, as it has for the past three years.

The 1985 Membership is on target and by December the Division should have recorded its fourth consecutive year of growth.

A concerted effort has been made by the 1984/85 Council to increase membership — and special thanks go to those individual members throughout the state who have recruited new members.

DOC LIAISON

A good relationship between the WIA and DOC is to the benefit of members.

Representations on interference, examinations and licensing have achieved satisfactory results.

An agreement now exists whereby either DOC or the Institute can call a joint meeting should a significant problem arise.

Normally routine matters are dealt with by letter or phone.

RADIO MASTS

As published in AR magazine, May, planning permits are now required for some radio masts in residential areas.

While the outcome of this matter hasn't been entirely to the Institute's satisfaction, it could have been far worse without the WIA making its views known.

The Minister's decision could be seen purely as a political one in that it appears to be a compromise between what a minority of councils through the MMBW wanted, and the position taken by the WIA.

However, the Institute through Alan Noble VK3BBM and Council continue to monitor the situation.

Although members are facing difficulties in their applications for building permits — no radio amateur has yet sought a planning permit.

In one recent case a member at Ringwood had opposition to his building permit application from a neighbour.

Part of the objectors' case included a valuers report claiming a proposed mast would have an adverse impact on property values.

The WIA obtained its own independant valuers report, which costs $100, stating the property values would not be affected. An appeal against the Council's refusal to grant a permit was upheld.

WICEN

This area of Institute activity has never been stronger or more professional in Victoria.

The post-Ash Wednesday restructure including formation of regions has enabled the workload to be spread and means it can confidently respond to calls for help from government and welfare agencies.

Fires in January this year saw the Department of Agriculture making good use of the Amateur Radio Service, and the Department throughout the state won't hesitate to call on us in the future.

GENERAL MEETINGS

Sadly these have deteriorated in recent months because no-one has been available to arrange speakers and adequately publicise the meetings.

The Frankston and Mornington Peninsula Amateur Radio Club has offered to make its club venue at Carrum Downs available for a WIA general meeting night.

This seems to be a good idea and could be expected to attract members from the south eastern and peninsula areas.

Perhaps other metropolitan clubs might offer their venues for a WIA meeting.

WIRELESS INSTITUTE CENTRE

The purchase of a better and more reliable photocopier has added a new dimension to the production of correspondence and public relations material.

The Administrative Secretary, Maxine Conheady, contributes greatly to the functions of Council, and in recent months her workload has expanded to include assisting the AR Liaison Officer, and mailing of the Victoria 150 Award and WIA 75 Award.

Without Maxine's dedication the active public relations and membership drive campaigns would not have been possible.

Thanks also go to the team of Wireless Institute Centre volunteers who keep the centre open Monday to Friday, and handle out of hours inquiries recorded on the phone answering machine.

PUBLIC RELATIONS

Strong internal and external public relations continued throughout the year with most achievements being recorded in AR magazine.

An awareness of public relations has been translated to most WIA zones, committees, and adopted by some individual members.

Taking advantage of the WIA's 75th Anniversary and the issue of a pre-stamped envelope by Australia Post on 22nd May, the Institute has obtained permission to display leaflets in all 330 official post offices.

Additional material including a take away leaflet will be available at thirty philatelic sales centres.

WIA 75

This has been fully covered in AR magazine. The Victorian Division has played its part by initiating and carrying through the highly successful WIA 75 Award.

Our Division was the first to activate the commemorative callsign VK75A.

Members have got right behind the anniversary celebrations including the CW Contest and World Amateur Radio Day WARC Bands activity.

It was a VK3 member who designed the WIA 75 logo — there were also other good entries from VK3 for both this competition and for the amateur radio posters.

CLASSES

In the past twelve months even more effort has been necessary to keep the theory and Morse classes at viable levels.

There's a serious decline in the number of candidates going to the Novice theory exam — and the WIA in Victoria will try all it can to attract newcomers to amateur radio.

This is where individual members can assist by making it a personal aim to introduce someone to the hobby.

VICTORIA 150

The state's sesquicentenary which started last November has been celebrated through a commemorative callsign, general availability of the alternative prefix VI, and the Victoria 150 Award.

Use on a roster basis throughout the state of VI3WI enabled clubs, zones and individuals to take part in a special event.

At the same time it brought them together in a union of common purpose.

The public relations value of our hobby's participation in Victoria 150 includes the opportunity to get a message to all members of the Victorian Parliament.

They were sent a copy of Amateur Radio magazine — the December edition which featured Parliament House on the front cover and contained a WICEN post-Ash Wednesday article and a feature on emergency communications following Cyclone Tracy.

THE FUTURE

Challenges are ahead for the WIA to further improve its membership, push even harder with public relations initiatives, and strengthen its relationship with member clubs.

With only one percent of WIA members being under the age of twenty, ways must be found to raise the number of youngsters in our hobby.

More attention should be paid in Victoria to our heritage and history before it's too late.

And in this 75th Anniversary Year, serious thought needs to be given to future directions for both amateur radio and the Institute. Jim Linton VK3PC

AR

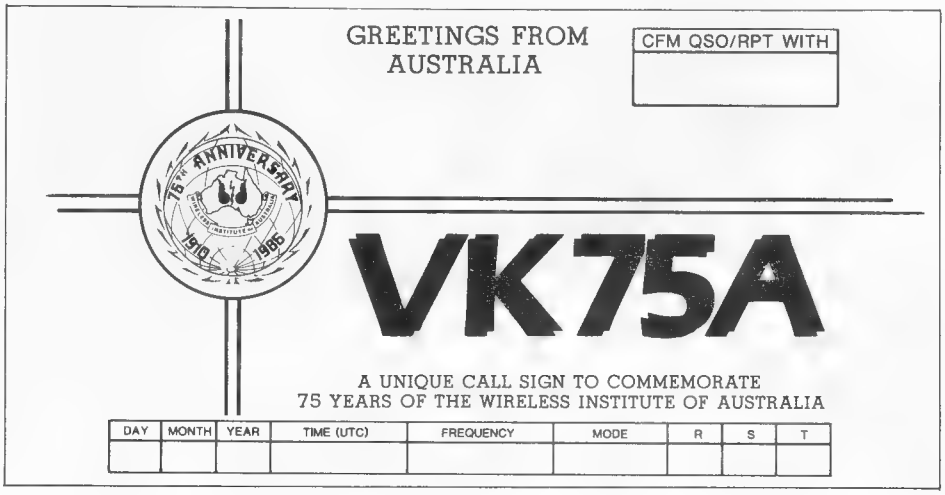
OSCAR STAMP MAYBE

There are recommendations afoot in the US for the issuance of a commemorative postage stamp to mark the 25th Anniversary of OSCAR 1.

OSCAR 1 was the first non-government satellite placed in orbit and was launched on 12th December 1961, exactly sixty years after Marconi's first trans-Atlantic experiment and exactly forty years after the first amateur trans-Atlantic signals got through.

From The ARRL Letter, Vol 4, No 10.

AR



Philately Day — 22nd May 1985

Photograph by Ken McLachlan VK3AH

The display at the Melbourne Philatelic Centre.

Photograph by Ken McLachlan VK3AH

Miss Jill Johnson displaying one of the first envelopes for sale.

Wednesday the 22nd May saw the release of the special Australia Post commemorative 33 cent pre-stamped envelope for amateur radio and the 75th Anniversary of the Institute, as reproduced on the front cover of the May issue.

The Melbourne Philatelic Centre, located in the centre of the city, had static and working displays, including an operative authentic 1936 station loaned by Mac VK3RV. The Manager of the Centre, Mr Ray Bolitho commented on the interest shown by the public to the exhibition and leaflets freely available, to explain more of our hobby.

Other Post Offices in the state had varying displays concerning the launch of the envelope, as space permitted, including the Mooroolbark Office, where a local amateur had loaned modern and equipment of yesteryear, to foster the hobby and promote the sale of the unique envelope.

DUAL BROADCAST

Permission was given by the Department of Communications to a simultaneous broadcast being made from 3RPC Portland and patched to the eighty, forty and twenty metre bands. The programme was opened by a short address from the Minister of Communications, the Honourable Mr Michael Duffy and was followed by a forty minute tape produced by Ken McLachlan VK3AH, interviewing Mr Chris Long, Acting Electronics Curator of the Museum of Victoria. The tape comprised a tour of the museums archives, interspersed with recordings made of Marconi, other notable gentlemen and some of the actual musical broadcasts that used to frequent the broadcast band from home-made transmitting equipment prior to World War II.

Call back stations, which were also patched through the Community Broadcast station, showed extreme interest and commented on the transmissions.

Australia Post salutes the radio buff
Ballarat Courier

Amateurs who rule the airwaves
Geelong Advertiser

Radio enthusiasts celebrate birthday
Warrnambool Standard

Amateur radio makes its stamp on society
Latrobe Valley Express

Post Office display will mark event
Mildura Independent

Talking to the world via space
Regional Times Extra

Amateur radio design
Shepparton News

Radio stamp
Bendigo Advertiser

Simulcast historic occasion
Portland Observer

Headlines used by provincial newspapers to publicise the pre-stamped WIA envelope throughout Victoria.

SOME MILESTONES IN COMMUNICATIONS

1832 Samuel Morse develops a system of "Morse" code.

1864 J C Maxwell mathematically proves existence of radio waves.

1887 Heinrich Hertz demonstrates Maxwell's theory.

1888 Prof R Threlfall repeats Hertz's demonstration, Sydney University.

1895 Marconi shows practical use of radio waves for sending/receiving messages.

1896 G W Selby, Malvern, Victoria, experiments with wireless telegraphy transmissions and built Australia's first x-ray machine.

1899 Demonstrations of wireless telegraphy in Melbourne, Sydney, Adelaide, Western Australia, and Tasmania.

1900 A number of wireless experimenters known to be active in Australia.

1901 Marconi's historic trans-Atlantic wireless telegraphy transmission.

1906 Marconi Company opens radio link between Queenscliff Victoria and Devonport Tasmania.

1910 Successful demonstration by GA Taylor in Melbourne that pictures could be sent by wireless.

1914-1918 Amateur Radio ceases during WW1, wireless experimenters serve.

1921 Nightly broadcasts of news by the Victorian Division on 200 metres.

1922 Wireless experimenters given permission to broadcast music and live entertainment on the new AM broadcast band.

1923 2SB (Sydney Broadcasters) now 2BL commences operation on 13th November, the broadcasting era begins.

1924 Experimenters make first wireless telegraphy contact between Australia, UK, and USA.

1925 Plans begin for outback wireless, forerunner of Royal Flying Doctor Service. Experimenter Alf Tragear develops pedal wireless. Experimenters establish Australia-wide wireless telephony communication.

1932 Len Moncur VK3LN Ascot Vale, Victoria, experiments with television.

1939 Black Friday, radio amateurs provide emergency communications.

1939-1945 WW2, radio amateurs play key roles in military communications.

1950 Public demonstration of television, by Len Moncur VK3LN.
Signals bounced off the moon by Victorian radio amateur Ray Naughton, who pioneers this medium with contacts to USA.

1970 WIA Project Australia team of radio amateurs in Melbourne build Australia's first satellite and have it launched in the USA.

1974 Cyclone Tracy, a radio amateur in Darwin and another in Melbourne set up vital emergency communication link.

1983 Ash Wednesday, 200 radio amateurs provide emergency communications.

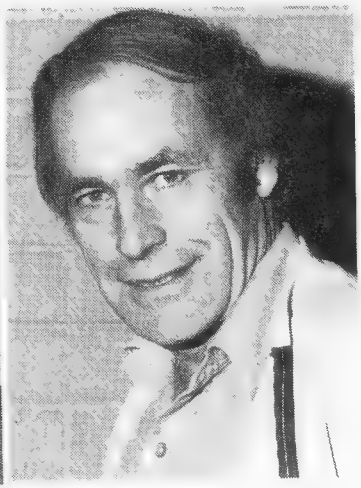
Max VK3BQ conducting the first two-way contact across the Pacific Ocean on 250 metres.

WIRELESS INSTITUTE: TO MANY IT'S A MYSTERY PLACE

Des Clarke — Secretary

Lindsay Rohrlach — Treasurer

Derek McNeil — WICEN Co-Ordinator.



Bill Wilson — Council Chairman

Many members probably haven't given Australia's national radio society much in-depth thought – of course they get the monthly journal or use the various free services provided by the Victorian Division – but actually understanding the WIA is another thing.

Perhaps it's not until one has served on the Council that an insight into the Institute's operations can be fully realised. No matter whether the year is 1925 or 1985, having a position on Council can mean some hard work. You have to make sacrifices, at times this can mean going QRT for weeks and turning your energies on a typewriter, the telephone, or attending meetings.

But all the time a dedicated councillor has in the back of his mind the basic foundations of the Institute set in 1910: "To protect and further the interests of wireless experimenters."

The Council is a barrier to the excesses of bureaucracy, governments and their agencies. It must formulate policies and strategies aimed at getting the best possible (realistic) for the Amateur Radio Service. One on-going task is liaison with DOC and other agencies to help maintain co-operation and understanding. This coupled with the work of managing the affairs and finances of the division can mean a heavy load falling on the shoulders of a few.

And being on Council can often mean you become the subject of criticism by the ill-informed. Admittedly some criticism stems from the "fear of the unknown" – a lack of knowledge about how the Institute works. But it's also generated by those in our fraternity who fail to (or don't bother to) learn the facts of a matter and vent their own personal emotional feelings.

Your national radio society is also harmed by those who hear these people rubbishing the WIA, and then repeat unfounded claims on air – often by prefacing their remarks with phrases like "I've been told that . . .".

The Institute in Victoria is open to scrutinity by its members – should you hear or read anyone voicing anything anti-WIA – remember you can find out the facts through the Divisional Secretary.

As stated earlier – the WIA is a human organisation – and being human means it too can sometimes make mistakes.

But a true supporter of the Institute will seek the full facts before forming an opinion about something the WIA is alleged to have done or not done.

AR

The WIA can be accurately described as a "human organisation" run by volunteers interested in the preservation and furtherance of amateur radio. These volunteers desire to bring out improvements to the Amateur Radio Service and put something back into their hobby.

THE FUTURE: A PROGNOSTIC LOOK AHEAD

Just what will the next 25 years hold for the world's best hobby?

Of course changes in technology will be reflected in amateur radio equipment. Industry sources predict in-built language translation to help radio amateurs (and presumably shortwave listeners) bridge the foreign language gap. Others consider microwave handhelds will be in vogue to link you with your mobile or home rig.

For this (and many other things) to happen, the thorny question of unattended amateur station operation, now prohibited, will have to be resolved.

Will in fact radio amateurs be redundant in the year 2010?

Imagine due to crowded bands and commercial pressures on the spectrum, amateur telephony is banned. It would be possible for our rigs to call CQ, make contacts, exchange signal reports, run a log and print-out QSLs. All of us in 1985 would find that type of development unacceptable.

Packet radio was born in Canada/USA a mere five years ago, and is being hailed by packeteers and others in Australia this year as the emerging trend. A digipeater is operational in Melbourne and packet facilities are to be part of satellites.

No matter how well digital techniques are accepted one feels confident that telephony will remain the major mode of amateur transmission. But only you reading this article in 2010 will know if the confidence held now was valid.

The great potential of packet radio and related keyboard-based techniques is to make our hobby attractive to computer buffs. This issue needs to be addressed with a sense of urgency as part of any WIA strategy to increase growth in radio amateur numbers.

Other obvious challenges include the issue of Morse code being a licensing requirement (no correspondence please – this is not an invitation to open up the code versus no-code debate again), and why not have a geostationary amateur satellite for Australia, New Zealand, Papua New Guinea, and the South Pacific.

This is feasible if an amateur satellite was piggyback launched with a future AUSSAT, the domestic satellite system.

AR

HOW'S DX

Ken McLachlan, VK3AH
Box 39, Mooroolbark, Vic 3138

It is on again, having started overseas, and it is something the hobby can do without or for that matter, anyone can do without, in my opinion.

I am specifically referring to the chain letter syndrome, which admittedly has been very quiet over the last three or four years but by all accounts they are around and about again. If any appear at this QTH, I will name the originator and the suggested recipients before casting it into its correct file, the waste paper basket.

There are many ways to ruin a hobby or friendships and this is one of them. In the past, the "letters" have been franked by a business type machine, probably at no cost to the originator, only to his employer who is paying the postal expenses.

CLIPPERTON

The full story is yet to be written, but the operation lasted 6 days 3 hours and 31 minutes, where 11,140 CW and 19,737 SSB contacts were made in temperatures between 35 and 38 degrees Celsius with a relative humidity of 98 percent. Not pleasant.

On landing and departing two boats overturned, luckily no serious injuries were sustained, seas were high and they had to suffer strong winds which brought in the salt spray, if it was not raining. The cost, estimated to be in excess of US$60,000, for less than a week's holiday, to give those number of contacts in round figures equals US$2 per QSO.

Thanks from all DXers, particularly those in the Pacific, to all the operators and donations would be gratefully accepted to help defray the expenses on the members and may be sent to "1985 Clipperton Expendition" c/- Rusty Epps W6OAT, 12866 La Crest Drive, Los Altos Hills, CA94022, where they will surely be appreciated.

All QSLs to YASME, PO Box 2025, Castro Valley, CA 94546 USA.

MT ATHOS

After all the attempts, it appears that I0SNY has received the following letter translated from the Greek language and as printed in QRZ DX.

Sacred Community of Mount Athos
Karie, 21.2.85
To the Civil Authorities of Mount Athos:

Dear Director:
As an answer to your letter (15.1.85) about the request made by the radio amateurs to visit and transmit from Mount Athos, we are sorry to have to tell you that the Sacred Community have decided to forbid forever the making of such transmission from Mount Athos.
Truly yours,

Signed: All the representatives and directors of the twenty Monasteries of Mount Athos.

In my opinion, it is sad that the monks have seen fit to ban a hobby in a rare DXCC country, that means so much to all amateurs, worldwide. My comment is, why?

UGANDA AND OTHERS

Some say there is no paperwork, as the authorities will not issue it because of more important duties and verbal permission is all that is required. This does not suit Don Search at the ARRL DXCC Desk. Others say that written permission has been granted and it is in Don's hands. Apparently Don says that he has documentation of a number of stations but has not processed them as yet.

I go along with the last statement but guess we will just have to wait, see and hope.

On the subject of what is and is not acceptable, the "nots" include C9, 5U7LD, DJ5CQ/SV/A and F6BFN/TT. The good news is, if you are a 40 metre enthusiast, that J5U91 was genuine for the frequency of 7.000 to 7.100 MHz. Outside of this allocation will not be allowed owing to the specifications noted on his documentation.

BAND ENTHUSIASTS

Lee KH6BZF, quite a humourist, predicts very good VHF propagation between the 9th to the 13th of this month, the HF types can expect good activity possibilities from the 1st until the 8th and says there is only 1000 days to go until we reach the bottom of Cycle 21, that is January 1988. This cheerful gentleman asks *"Have you another hobby"*? He closes his Newsletter with the notation *"If we indulge — we bulge..."* Lee a photo please, not head and shoulders either, thank you.

HERIKS DEVALUATION PROBLEM!

Remember Herik FR0LO. Who could forget? Well Herik now sports the call FR5DX and was visited by a couple of European amateurs, demanding an explanation for where were the cards that the dollar notes were sent for. Heriks reply was that it was illegal to send currency in the mail system. I was lucky in getting my card with no hassle and apparently it is not illegal in Herik's code of ethics to receive it.

Herik's many excuses, for not receiving mail at the time, sounded to be genuine but my question is "Did he get in before the devaluation?" and what a killing he must have made either way, as I listened to him a couple of years back, for hours on end, day after day, working the United States at a rate of 30 or 40 contacts per hour. No further comment is necessary except perhaps to note that this has happened in other countries including VK over the years. All countries have their "rare ones"!!!!!

FORUM

George VK3GI has brought to my attention that he worked HI3RST/KP5, last July and has just received the card. The contact was quite difficult and the reports on SSB were 5x1 both ways.

To George's amazement, he received a card with most of the information pre-printed, including the report which was pre-printed at 5x9.

George states *"What utter nonsense this makes of the reality of a contact. I do appreciate the pressure in sending out QSL cards in the thousands after a DXpedition, but is there any value in giving RS reports at all?"*

George likens it to contests, where the monotonous 5x9 reports roll off the tongue hour after hour and in my experience you are requested to, at times, repeat Call and/or report and serial number.

George would like to know how other DXers feel about this matter and I am going to ask you to write to him direct to save overloading my Post Box and trust that he will correlate the replies and pass them on, so they may be printed for the readers' benefit.

George, I don't agree with anyone, but you are an exception with this one and I wonder how the ARRL DX DESK views a pre-printed signal Report. Comments to George please at PO Box 22, Woodend, Vic. 3442.

THE UN AT 40 AWARD

Not trying to steal the Awards Editor's thunder but a special "UN At 40 AWARD" will be issued to any station or SWL working two of the United Nations stations during their 40th Anniversary Celebrations between 1st January and 31st December 1985. The stations are 4U1ITU, 4U1UN and 4U1VIC.

The cost of the award is US$5 of which US$4 goes to the United Nations Children's Fund (UNICEF).

Applications must reach the United Nations Recreation Council Amateur Radio Club, United Nations, Room DC1-0724, PO Box 20, New York, NY 10017 USA before the 1st February 1986.

4U0ITU has been very active on the bands. The operators have been F6EYS and F6HIX.

SALVAGENS ISLAND

The Madeira Club is intending to make an all out effort between the 10th and 20th of next month. No call or QSL information as yet. For those interested the IOA reference is AF-47.

SWEDEN CELEBRATES

Congratulations to the Swedish Amateur Radio Society who celebrate their sixtieth anniversary this year. Selected call signs using the prefix 7S have been heard.

KOREA

An amateur from the German Democratic Republic will be in the People's Republic of Korea and hopes to obtain a licence. Call sign and documentation particularly could be another problem and an interesting "red tape" exercise for the licensing authorities!

BITS AND PIECES

Treat 5A1A as a Pirate**. YV0SE and YV0SEE are thought to be YV40SE and YV40SEE, a special call from EAST Germany. Y40BER has been heard and his QTH is Berlin**. St Brandon didn't eventuate. Amateur operations from 3B7 and 3B8 by foreigners is now forbidden.** Ghis ON5NT, showed how it shoud be done, he made 7210 QSOs from "Bull" 9U5JB's QTH, on all bands 10 through to 80 metres. Only one "G" station appeared in the log. QSL to ON5NT.** Many European stations not happy about the treatment, even though propagation was good, from the Clipperton Expedition. No trouble in the eastern part of VK.** XF4MDX made it, but only for 48 hours, for the many VKs that made it, QSL to XE1MDX. **Crete will be activated by Hal W0PU and his XYL Lynn SV0DW until December. Father John SV0DZ is also presently active. **Three stations, EO1AOK, UW3HY/1 and UA1OT are active from the much sought after Franz Josef Land, ** 3A2CZ and 3A2TO are unissued licences, therefore they are to be treated as "pirates". ** 9U5JW mainly active on CW. ** Twelve JY nationals have passed the examinations and are awaiting the allocation of their licences. ** A wellknown VK3 operator is touring North America, with his XYL operating Motorcycle Mobile and is having a "Ball". ** A positive leap second was put into WWV, WWVB and WWVH on the 30th of June at 23:59:60 UTC. This will retard UTC by one second. Ladies and gentlemen, check your clocks!! ** A well known VK DX operator and QSL Manager has received an invitation to go to the cold south this year. Will he accept??? ** Rumour has it that the residents of Papakura in ZL are jubilant. Dave ZL1AMN, one of the controllers of the Pacific DX Net and Aola ZL1ALE have the tower down for repairs. The neighbours can now see the skyline but I am assured it will not be for long. Will it be a better signal??? ** Still no contact or mailed log to hand on the last boat out from Macquarie Island, from Denise VK0YL, which unfortunately does not allow me to verify the many cards that I have on hand.

PERSISTENCE

Remember in last month's column an appeal for help by Peter G3VIE? Well Peter solved the puzzle of where to find the much wanted cards. A scrutiny of the VK calls one by one, a likely looking similarity, an enquiry to the overseas telephone operator, subsequent phone call and an amazed VK. Peter luckily started at the front of the book and not the VK8 listings as it was found in the first few pages.

Congratulations on your persistence and determination Peter after 15 years of waiting.

DEDICATION

This month, regrettably will be the last segment of "CW SWLing by L30042". Eric has been a constant contributor, except for an overseas trip, since I took over the column.

From all readers and particularly from Bett, my XYL and myself a big thank you Eric, for your contributions that would appear regularly in the mail box on the appropriate day.

Eric feels that it would be impracticable to continue on a regular basis due to the impending change in his lifestyle, which is on the secret list at the moment.

It is hoped to reveal Eric's secret in a future edition of this column but in the meantime our friend, health, happiness and every good wish.

FRANCE

Confusion! The French authorities have decided that first-class licensees may use either the "F" or "FE" prefix at their discretion. For example FE6EYS may also use F6EYS.

WILLIS ISLAND

The new operator Kim VK9ZB, will be active until Christmas. QSLs to VK6YL.

PREFIX CHANGES

VX6 will be used to celebrate the 100th birthday of the City of Lethbridge, Alberta and may be used in lieu of VE6 from the 14th to the 27th of this month.

The X* prefix has been authorised to commemorate the 100th anniversary of Parks in Canada

from the 29th June until the 29th August. Newfoundland XO1, Labrador XO2, Maritimes XJ1, Quebec XJ2, Ontario XJ3, Manitoba XJ4, Saskatchewan XJ5, Alberta XJ6, British Columbia XJ7, NWT XJ8 and the Yukon XK1.

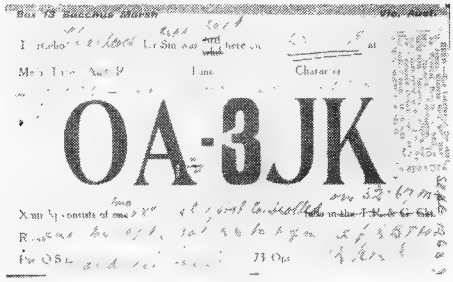
PROPAGATION UPDATE

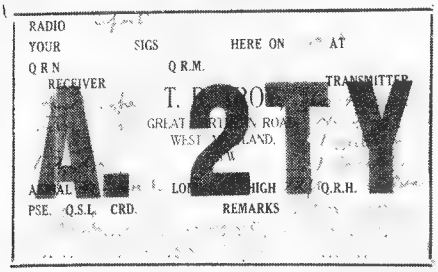
Lee KH6BHF, in KH6BZF REPORTS, estimates that the following dates should be good for long haul twenty metre activity.

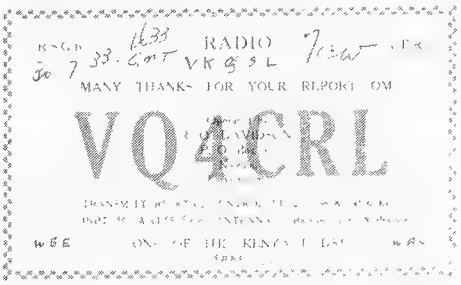
From the 1st to the 3rd, 5th to the 8th, 10th, 15th and 16th, 25th and 26th and the 28th of July. Thanks Lee and we trust that you are correct.

SWL CARDS

Below are reproduced some SWL cards received by Eric L30042. The two Australian cards, OA3JK and







A.2TY were of the 1928 vintage. The overseas cards are 1933. All of course on CW.

ERNST KRENKEL

This old-time DXer, who is now a Silent Key, had the unusual call of RAEM. RAEM was the call of the SS Cheluskin that was smashed in ice in the Arctic Sea in 1934. Ernst was the Chief Radio Operator and was allowed to use the call as late as 1965.

Many references are made to him on some USSR cards and there is an Antarctic and Arctic award in his honour.

TRIVIA

Coaxial cable has been around for over a century. It was patented by Werner Siemens, a German inventor and industrialist, on the 27th March 1884. The first cable of this type was used to carry TV signals between Berlin and Leipzig, for the Olympic Games in 1936.

This type of cable has been used by the majority of amateurs in their time and is still being updated to provide better characteristics.

STATISTICS

The FCC released the following figures regarding Amateur Licences as of the 29th March this year.

The USA has 410,775 individual operators in all Classes and in January 1,097, February 1,454 and March 1,923 amateurs upgraded their licences. In the same period 4,586 people became new licensees.

CW SWL-ING WITH ERIC L30042

28MHz

VK2RSY, VK3AGR, VK3DXF, VK3KNJ, VK3PIW.

21MHz

HL4UV, HL0ARC, JP1FEE, JA3CXQ, JA7YFB, JH8LQD, JH9DPP, KH6IM.

14MHz

EO9AAA, FK8FE, FK0AT, HL1CG, I2ILJ, KG6JIC, LA7XB/3B8, P29FJ, SW2UF, UA0LCZ, UR1ROK, UZ4CWP, UZ0LWX, VE7CLZ, XE1CCB, XE1MZH.

10MHz

DL3OO, DF5MX, DJ8NY, F3BC, F8TP, G2BY, G3TSA, G6ZO, G8FW, HB9QO, JR2QKH, JA6HGX, LX1BJ, SM4DIG, SM5DFF, VK1EP, KU1H, W2AQT, W3ORU, WY4E, KE5RB, WD0EPH.

7MHz

AH6V, CE0ZIG, CO2OM, CT1BIX, CT2AO, DF8PH, DJ9GD, EA2CU, EA5OY, EA7LI, EA9KD, FK8FA, FM5CD, GD0/DL4VU, HA9OA, HA1KSK, HA5GN, HB9BFQ, HI8LC, I2DMK, I3LDS, IT9JII, KH6RM, KP2J, LZ1KVF, LZ2KKW, LZ9MAY, OA4ZV, OE5BCM, OH1LQ, NP4MO/AE, SM6CVX, SP5BWO, SV0AH, TI2PI, UA3TG, UA6LJ, UA0JAW, UB5IFW, UL7WH, UP1BZO, UT5SG, UZ6AXJ, WL7ARV, YB3CO, YC3SO, YU1ABH, YU3DKR, YU2AKL, 4N7A.

1.8MHz

VK2APG, VK2BAT, VK3XU, VK4KO, VK5NM, ZL1HJ, VK3BVS, VK3ST.

QSLs RECEIVED BY ERIC L30042

A35EA, HA9RT, JA7WWH/JD1, KL7AF, OE3ZOC, ON7KD, UK8AAI, K9MK/V2A, VS6TEN (28MHz Beacon), N7YL, YV4AU, 4S7EMG, ON6TZ/4S7, 4X4HQ, 5W1ER, 9K2BE and 10MHz, DJ3XF, DF0BA, DL7AEA/EA6, GM3JDR, JA4FM, JA5DQH, W1NHJ, W2GT, W2KTF, WA2LBA, W3ARK, ZL4PO/C.

THANKS

This column would not be possible without the following. The Editors of weekly, bi-weekly and monthly newsletters including the ARRL NEWSLETTER, RSGB DX NEWS, QRZ DX, LONG SKIP, PAPAKURA RADIO CLUB NEWS, DX FAMILY FOUNDATION NEWSLETTER, JAN and JAY O'BRIEN'S QSL MANAGER LIST and KH6BZF REPORTS. Magazines including CQ, cqDX, QST, RADCOM, JARL NEWS, KARL NEWS, OZ, 73 for Radio Amateurs, BARG NEWS, BREAK IN and VERON.

Members who have contributed include VKs 2JM, PS, 3GI, YJ, YL, G3NBC and L30042. Overseas amateurs include G1EOD, G3VIE, I8SAT, ZL1AMM, and ZL1AMN. Special and sincere thanks to one and all.

AR

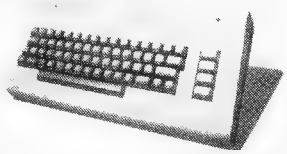
At the last meeting of the Publications Committee, mutual agreement was that I would continue writing these notes. I sincerely thank the Committee for their confidence, the contributors over the last four years and look forward to more contributions from all readers in the future.

COMPUTERISE YOUR SHACK . . .

WITH A COMMODORE COMPUTER SYSTEM

THE COMPUTER:

Commodore 64



64k RAM, 20k ROM, Colour, Sound, Full Size Keyboard. Built-in BASIC. The world's top selling computer for only

$399.00

add $3 for mail orders.

The INTERFACE:

RTTY Decoder — $39.95

Low cost kit for reception of RTTY, CW, etc. Easy to construct decoder plugs between your rig and computer for all receive modes.

DPW Card — $29.95

This comprises a Printed Circuit Board and complete instructions to build a complete interface for reception and transmission.

The SOFTWARE:

RTTY/CW/SSTV 64 — $79.95

This plug-in cartridge for the Commodore 64 features split screen and expanded screen modes for reception and transmission of CW, RTTY (ASCII & BAUDOT) and SSTV transmission. Extremely versatile with over 40 operating commands. (New revised version.)

VIC RTTY/CW — $79.95

As per the C64 version without SSTV transmission.

HIGH TECHNOLOGY COMPUTER SYSTEMS PTY LTD

290 BAY STREET, BRIGHTON, VIC. 3186. PH: (03) 596 6211
87 SWAN STREET, RICHMOND, VIC. 3121. PH: (03) 429 1966

HIGH TECHNOLOGY

AR85

AWARDS

Joe Ackerman, VK4AIX
5 Koomooloo Court, Mermaid Waters, Qld 4218

FROM: Federal Awards Manager
ANNUAL UPDATES

The Federal Awards position now comprises two members, VK4AIX and VK4LC. Joe VK4AIX handles all the overseas awards and submissions to AR, Bill VK4LC handles all WIA awards.

Evidence has been received to confirm that VU7WCY did operate with Indian Government approval from the Laccadives. Their QSL gave no indication where the operation was from (see DXCC rule 1.3). If your card was rejected please resubmit it to FAM.

Cyprus ZC4 was previously mentioned in AR. QSLs for the new country will be credited from 1 June 85. The QSL from ZC4 must indicate that the contact was made from a Sovereign Base Area. If you have doubts please forward the QSL.

Now for details of new DXCC members, DXCC updates and new WIA Awards Certificates issued up to 1 March 85.

Again it is requested that new submissions for DXCC be on a photocopy of the DXCC listing from the 1984-85 Call Book. Thank you for your co-operation.

DXCC NEW MEMBERS

Callsign	*Certificate*	
Phone	*Number*	*Total*
VK9ZA	329	102
VK1LF	330	101
VK4EJ	331	106
VK3APT	332	108
CW		
VK6FS	125	145
OPEN		
VK6FS	226	229
VK3DNC	227	119
RTTY		
VK5RY	003	102

WAVKCA AWARD

VK7DS	1268	JJ3WUG	1299
VK1KAL	1269	I3TZP	1300
YC2DNT	1270	JE2QWC	1301
IN3ANE	1271	JF2LEX	1302
OK3YCA	1272	JA6AKV	1303
G3YRM	1273	OK3CGP	1304
4Z4VG	1274	JA7YFB	1305
JA7KPE	1275	DJ4SK	1306
UB5GBD	1276	G3WP	1307
UW3DR	1277	VK3KYL	1308
UA0FCL	1278	JE3WTH	1309
RA3DKE	1279	JR3CUJ	1310
UA3FT	1280	VU2JXO	1311
JG3EUM	1281	JG1FVZ	1312
JR1UIO	1282	JH2ABL	1313
JA5DVP	1283	JA3UCO	1314
JR2CFD	1284	JA1ATB	1315
VK2EBM	1285	JA4CPZ	1316
ON5KL	1286	JH4MPI	1317
ON7ZM	1287	DL1ES	1318
JM1MGP	1288	VK1MV	1319
JA7TQK	1289	JR6PGB	1320
JR8AYI	1290	I2MQP	1321
JA3CJL	1291	VK4YX	1322
JR3RRY	1292	GM2BUD	1323
JF1CKL	1293	JA7OUV	1324
UB5EDU	1294	JH7DFZ	1325
UB5BAT	1295	YB3CDL	1326
UA3DFK	1296	JE1ZSK	1327
UY5OQ	1297	G4KJF	1328
UA9EJ	1298	I8SAT	1329
		YB0BZZ	1330
		JA7IC	1331

DXCC LADDER AS AT 1-3-85

DXCC — PHONE
314 — VK6RU; VK5AB; VK6MK; VK4KS. 310 — VK4VC. 309 — VK6LK; VK6HD; VK4AK. 307 — VK7LZ. 306 — VK3JF. 303 — VK4FJ. 302 — VK3AKK; VK5WV. 301 — VK4LC. 300 — VK6NE; VK3AWY; VK2DFE. 299 — VK5XN; VK3AMK. 298 — VK6FS. 296 — VK5WO. 293 — VK7BC. 291 — VK6YL; VK4PX. 290 — VK3RF; VK2APK. 288 — VK6IH. 281 — VK2AHH. 279 — VK6IR; VK4BG; VK3DU. 278 — VK6AJW. 275 — VK5OU.

DXCC—CW
310 — VK2QL. 306 — VK3YL. 300 — VK4FJ. 299 — VK3XB. 292 — VK3YD. 291 — VK4RF. 290 — VK4UC. 280 — VK6HD. 279 — VK2APK. 277 — VK3KS.

DXCC — OPEN
314 — VK6RU; VK6MK; VK4KS; VK3YL. 313 — VK4SD. 312 — VK6HD; VK4AK. 310 — VK4RF. 309 — VK7LZ; VK3JF; VK4FJ. 305 — VK5WO. 303 — VK3XB; VK5WV. 302 — VK7BC; VK3AKK. 301 — VK4LC; VK4PX. 299 — VK3AMK; VK6FS. 298 — VK3OT. 297 — VK2APK. 293 — VK4UC. 287 — VK4BG; VK3JA; VK2AHH.

WAVKCA (VHF)
VK4ZJB — 19. VK2BNN — 20. VK2QF — 21. VK4ZNC — 22. VK3VF — 23. VK2YO — 24.

WAS (VHF)
VK4ZSH — 155. VK2BNN — 156. VK3YTT — 157. VK3VF — 158.

VHFCC
VK2BNN — 116. VK3VF — 117.

HAVKCA (SWL)
UA9-14530 — 80. UB5-0732589 — 81. L30055 — 82. UA3-1687 — 83. ZL2-266 — 84. UO5-039166 — 85. UAO-1038 — 86. UA3-170483 — 87. UQ2-03726 — 88. UB5-065494 — 89. UAO-110199 — 90. UB5-078589 — 91. UA3-135215 — 92. VK3-L30037 — 93. ZL-202 — 94. SC DX 490 — 95. ZL-2259 — 96. JA7-8257 — 97. JA2-8764 — 98. JA2-8764 — 99.

DXCC OVERSEAS MEMBERS
311 — WA3HUP. 296 — WB3CQN. 140 — G3NBC. 104 — ZS5CO.

Enquiries have been made to the Federal Awards Manager for information relating to awards which are issued by the ARRL, CQ Magazine and 73 Magazine.

Full details of these awards will be published in Amateur Radio for the information of amateurs and SWLs.

ARRL AWARDS

The ARRL sponsors the DXCC, 5BDXCC, WAS "Satellite 1000", A1 Operators Club and Code Proficiency Awards.

The DXCC Award is one of the most sought after awards. Its issuance is carefully supervised by three staff members at ARRL Headquarters. Separate DXCC Awards are available for: mixed modes, all phone, all CW, RTTY, 160 metres and satellite.

Applications must be made on the correct forms and endorsements which are available from ARRL Headquarters for an SASE. The forms will be returned, together with a guideline for postage fees if you require the return of your QSL cards.

Further information may be obtained from: ARRL HQ, 225 Main Street, Newington, CT. 06111. USA.

Under the new call system in the USA where a call has been issued for a call area the amateur, on moving to another call area, retains his original call sign. This now makes it possible to work WAS with all W3, W4 etc. I wonder if ARRL will have an endorsement for this achievement?

73 AWARDS

The editors of 73 Magazine provide the following awards: The DX Country Club, Specialty Communications Achievement (two classes), Worked All USA and Century Cities Awards.

These awards do not require you to forward QSL cards, only certification made by either two other amateurs or a local club secretary.

Further information may be obtained from: 73 Awards Manager, Mr Bill Gosney KE7C, 2665 North Busby Road, Oak Harbour, Whidbey Island, WA. 98277. USA.

CQ MAGAZINE AWARDS

Some very interesting awards are sponsored by the Editor of CQ Magazine. WAZ, WPX, WNPX for Novice operators and VPX for SWLs.

Application form CQ 1051A is available from the Awards Editor by sending an SASE. Use sufficient postage if required by return air mail.

Cost of the awards is $US4.00 for subscribers and $US10.00 for non subscribers. Endorsements require application on a special form and cost $US1.00.

Address: CQ DX Awards Editor, Mr Billy Williams N4UF, Box 9673, Jacksonville, Florida, 32208. USA.

ALASKA GOLDPANNER AWARD

Remember the lure of gold and the halycon days of the gold rushes in Australia, California and Alaska?

To commemorate the entry of Alaska as the 49th State of the USA the Alaska DX Association has sponsored an award highlighting, as the centre piece of the award, an OT with his pan sluicing for the elusive metal.

It is produced on white litho paper, the border being green and gold. Inside the border the colour is cream with gold rays leading from the miner's pan to each border edge. Printing is in blue.

The Award is available to all amateurs and SWLs on a heard basis.

Contacts on and after 1 September 1948 are valid.

QSLs are not required. A list certified by an awards manager of a radio club or a representative of the National Society verifying that the QSLs are correct is to be forwarded with the application together with the fee of $US2.00 or IRCs and/or stamps (US) to the value of the fee is acceptable.

Applications to be forwarded to: Alaska DX Association, Awards Manager, Tony P Smaker Jr KL7AF, Box 1614, Kodiak Island, Alaska. 99615. USA.

Requirements: One QSO with each Alaska prefix, AL7, KL7, NL7 and WL7, and nine additional QSOs with any other Alaska station, thus "4-9er".

Awards are issued for mixed, CW only and SSB only. Band endorsements are available on request.

THE WAC AWARD

The ever popular Worked All Continents Award (WAC) can be yours by simply submitting QSLs as proof of contact with each of the six continental areas of the world, Africa, Asia, Europe, North America, Oceania and South America.

Confirmations submitted with all CW, mixed CW and phone will receive the basic award.

Special endorsements include: 1.8 MHz, 3.5 MHz, 144 MHz, RTTY, SSTV, SSB and phone.

A unique version of the award is available for working all six continents on each of five or six bands.

Applications are to be forwarded to the WIA Federal Awards Manager, Bill Hempel VK4LC, QTHR enclosing the six QSLs together with an SASE for the return of your cards.

After certification by the FAM the application will be forwarded to the IARU. Your award will be sent direct to you from the IARL.

The worlds first WAC Award was issued by the ARRL in April 1926 to Brandon (Brandy) Wentworth U6O1. Brandy is still around as K6UJ, living in Maine.

In 1930 the ARRL transferred administration of the popular WAC Award to the International Amateur Radio Union. The first WAC Award issued under the auspices of the IARU went to Sam Cantor W2BOZ, now W6TSQ and active on the low CW ends of the amateur bands.

Who claims the first WAC issued by the ARRL and also the first Award issued by the IARU to VK amateurs?

COPPER COIN AWARD OF FALUN

The CCAF Award is issued by the Falun Radio Club, Sweden and consists of a hand-made, engraved miniature in copper of a l-Daler-piece from the time of Carolus Rex (Charles XII) 1715. Size 57x63x3 mm or 2¼''x2½''x1/8'', weight 100 grams (3.5 oz).

The award can be earned by all licensed amateurs in the world, club stations included, who have been in two-way contact with amateurs within the Falun area and thereby gathered at least 10 points according to the table below. Only one contact per station and band after 1st January 1966 will be counted.

3.5 MHz — 5 points, 7 MHz — 3 points, 14 MHz — 2 points, 21 MHz — 2 points and 28 MHz — 2 points.

All contacts have to be made on the same mode, ie CW, AM, SSB, RTTY, etc. A minimum report of 338 on CW and 53 on phone must be recorded in each direction.

Applications with an attached record of the contacts claimed and $US5.00 should be sent to: Falun Radio Club, PO Box 12, Falun 1, Sweden.

Before an application can be approved, all amateur stations in Falun, with whom the claimant has been in contact, must have received the applicants QSL card. The award will be sent by registered mail. The following stations are located within the Falun area: SM4: AJG-AMC-ARY-ATJ-AUU-BJX-BPD-BPU-CGP-CIM-CSF-CUQ-CYR-DAG-DJO-DNX-EAC-ENH-ENK-EPX-FCD-FPR-FTQ-FZQ-GIB-GL-GLX-HFI-HOU-IRX-JCY-JD-JLX-JNC-KRI-KRL-KSM-KVB-MEC-MJH-MVW-MYG-NBG-NDW-NEI-NSQ-OGR-OHH-SX-TO-TU-WQ and SL4BP.

The Daler is a square shaped coin peculiar to Sweden. Coining of big sized copper coins goes back as far as 1644 when the 10-Daler appeared. Coining of square shaped pieces then went on until 1776. The 10-Daler coin from 1644 is the biggest coin in the world and of the 25539 pieces minted only four have been preserved. Falun is located at Lat 60° 36'30''N, Long 15° 38'E.

This is a most unusual type of an award and is surely one which would provide satisfaction to the recipient.

THE WASHINGTON TOTEM AWARD

The Western Washington DX Club, the north-wests largest and most active DX group, takes pleasure in issueing the first W7 major award. This award is issued to any licenced radio amateur who submits proof of two-way radio contact with the State of Washington. The totem pole shown on the colourful award is typical of the totem poles once found in the State of Washington.

Requirements: 1 Applicants must submit proof of QSOs with 100 different Washington stations. Twenty of these must be confirmed contacts with different Western Washington DX Club members. DX stations need only confirm twenty five Washington stations including ten WWDXC members.

2 General certification rules apply. Submissions of QSL cards is not required.

3 All contacts must be dated 1 January 1973 or later.

4 Certified lists submitted should be in alphabetical order with the date and time in UTC.

5 The Washington Totem Award is free to all stations outside the USA.

6 Special endorsement: The Washington Totem Award may be issued for specific bands or modes if all supporting information is included with the application.

7 The WWDXC will furnish a current membership list upon request including an SASE. Address for applications: Awards Chairman, Western Washington DX Club Inc, PO Box 224, Mercer Island, Washington. 98040. USA.

ITALIAN AWARDS

The Torino Section of ARI issues the following awards to amateurs and SWLs who have established QSOs as follows.

DIPLOMA TORINO DT (1953)

Stations of Torino Province
15 for Italian stations
10 for European stations
5 for Extra European stations, all in the same mode and the same band.

DIPLOMA UNITA 'D'ITALIA (1960)

One station of the Province of Torino plus 18 QSOs with 18 stations located in 18 different Italian regions.

It is not necessary to send QSLs confirming the QSOs; all that is required is to send a log extract with the necessary indications countersigned by another amateur to: ARI, PO Box 250, 10100 Torino. Italy.

AWARD ''TEATRO GRECO''

This award is instituted by the Syracuse Section of the ARI. To obtain this award it is necessary to send to the ARI Syracuse Section, PO Box 130, a log extract containing all the details of contacts or listenings made, not QSLs.

10 contacts for Italian stations
5 contacts for European stations
4 contacts for Extra European stations

There is no limitation to the band-12 IRCs to cover return postage is required.

The ''jolly'' stations are valid for 3 points. Member section: IT9: BYJ-DHR-DSL-EJA-FGH-FQF-FTT-GAI-GKY-IDD-KMU-KUG-LHQ-MLT-MNG-NTO-NTQ-PBR-PLT-QDS-QMA-RHK-RIE-RVZ-USV-VEU-VFZ-YRS-YRE-YSI-XNM-ZHB and ZVT.

IT9 stations are very active and this award should not be a difficult one to obtain.

All

WABAS AWARD (WORKED ACTIVE BRUGES AMATEUR STATIONS)

Class III requires 6 points
Class II requires 12 points
Class I requires 24 points
Endorsement requires 20 points

Points allotted are: phone 2, CW 3, other modes 2 with the Club Station, ON6BR counting one point extra.

Every answered QSL from a Bruges SWL will double the points for that QSO.

The same rules apply for SWLs.

No QSLs are required, just a list signed by two amateurs plus your mailing address. Contacts from the 1st January 1983 are valid for this award.

Cost is 10 IRCs or 200 Belgian francs. Updating is 2 IRCs or 40 Belgian francs plus SAE.

Applications should be sent to the awards manager, ON4AYL, PO Box 24, 9990 Maldegem, Belgium. Members of WABAS.

ON1: AIL, AIT, AJO, AJZ, ALE, AWI, AWU, AYD, BEW, BFG, BMW, BTU, BUC, BWE, CE, DO, KAN, LV, OK, PW.
ON4: AAJ, ACH, ACK, ADI, ADO, AGD, AJ, AJD, APC, ARL, ASF, ASV, AYL, CJ, DZ, GJ, IA, IK, KE, KF, KZ, LO, ND, NF, OD, OO, PY, RP, UO, WV.
ON5: BG, CV, FU, IA, IG, JR, KG, LO, NQ, NT, NY, OE, OJ, SB, TO, VA.
ON6: AA, BK, BR, DX, FF, HO, IU, JA, JI, JN, OH, OU, PX, TL, UM, WU.
ON7: CA, ER, FV, HT, HW, IE, IN, KV, PE, PY, QN, QU, TE, UE, VK, XN, XX.
ON8: RB.

FIELD AWARD

The Swedish Amateur Radio Society will issue the **Field Award** diploma to licenced radio amateurs and short wave listeners for verified contacts with **fields,** as defined by the locator system adopted as from 1 January 1985 (Maidenhead locator). Contacts on or later than this date are valid for the diploma.

The field award is issued in four classes:

PLATINUM	*— All 324 fields verified*
GOLD	*— 300 fields verified*
SILVER	*— 200 fields verified*
BRONZE	*— 100 fields verified*

All amateur radio bands and modes are permitted. Endorsements will not be issued.

All contacts shall be made with stations on the earth's surface.

Contacts shall be verified by QSL cards or their equivalent, on which it is clearly stated the field or position, with such accuracy that the field can be determined. The term "position" refers to latitude and longitude or to a place name.

If there is any uncertainty about a field, SSA may demand further information before approving the contact. If the uncertainty remains, then the contact will not be approved.

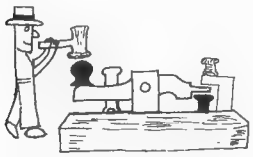
A random sample of individual QSL cards will be made, which must be sent in for checking.

The application shall be made on a GCR list, containing the information from each QSL card which is required for approval. The GCR list shall be verified by the applicant's national diploma manager or other official in the applicant's national amateur radio society.

The fee is 30 Swedish Crowns, 10 IRCs or 4 USD.

Application address is: *Field Award Manager, SSA, Ostmarksgatan 43, S-123 42 Farsta, Sweden.*

AR



POUNDING BRASS

Marshall Emm, VK5FN
GPO Box 389, Adelaide, SA 5001

GETTING IT RIGHT

Some months ago I quoted a local newspaper column which gave advice on adapting 240 watts appliances to 110 watts with a three-prong to two-prong converter, or some such. They say a little knowledge is a dangerous thing, but I think you could say a little knowledge goes a long way. The following material forms the gist of some recent reading, and I hope you will find it as amusing as I did.

The scene is the Defence Headquarters conference room, and the President is discussing ways of foiling a blackmail attempt based on a thermo-nuclear device hidden in the Capital. The blackmailer has threatened to trigger it with a radio transmission. Aside from all the speculation, what they don't know is that a "forgotten" OSCAR satellite, which doesn't appear on any listings of orbiting objects (!) is to be used for the detonation signal. But that's getting ahead of the story. Listen in as a Colonel gives all the technical detail to the "Big Chief". . .

". . .'For a transmission over this distance he'd have to use long waves which bounce off the ionosphere and come back down to earth. That means low frequencies.'

" 'How many frequencies would be available to him for something like this?' the "Chief" asked.

" 'A megahertz. One million cycles.'

" 'One million!' the "Chief" rubbed the stub of his chin between his thumb and forefinger. 'Could we jam all one million of those frequencies?'

" 'Sir, if you did that you'd wipe out all our own communications. We'd close down the police, the military, the fire departments, everything we'd need in an emergency.'

" 'Never mind. Suppose I gave the order, could we do it?'

" 'No, sir.' "

Well, the plot thickens, as they say, and there is later reference to very low frequency communications on frequencies of "10 Hertz" or less, and they finally give amateur radio a reasonable plug in describing how the forgotten OSCAR came to be there. For me, however, what could have been a fascinating thriller had become more akin to a comic book. It would have taken so little to get it right — but I suppose the days of critical editing are long gone. Used to be the cardinal sin in writing a thriller was to give your hero an automatic pistol, and then have him point his "revolver" at someone.

What it all boils down to is a matter of **standards,** and therein lies the moral of the story. Effective communication requires adherence to standards or it is meaningless, if not laughable.

Look at the Citizen's Band, where the only enforced standards are a result of peer pressure. They've developed their own standards, so you hear jargon which sounds silly to an outsider (eg "QRZ, QRA, modulate the breaker!") but sounds "cool" to other members of the fraternity.

Things are different in amateur radio, primarily because the hobby itself is serious in purpose, and generally practiced by serious people. Nothing like it used to be, as my old-timer readers are undoubtedly saying, but then **nothing** is like it used to be. Certainly not yours truly.

Am I turning into an old-timer already? I suppose at the ripe old age of 35 one tends to take stock a bit and start to look at things differently — half of the allotted three score years and ten has already been used up. It's too soon to start thinking of yourself as a tribal elder, but it's time to realise that one is no longer a young hot-shot. One is already threatened by or at least feeling a lot of pressure from the next generation of young hot-shots. Things could be a lot worse, of course — pity the young super-star gymnast whose career is over at the age of twenty or less.

So as I grow older, I grow more conservative, and develop an ever increasing nostalgia for the way things used to be done. I use commas where one would pause if reading aloud, despite a ukase from the Australian Government Style Manual that they should be used only where absolutely necessary to the sense of what one is writing.

So where have all the standards gone? Has amateur radio evolved into something so informal that anything goes? I think most of us would hope that some standards can be preserved. I have no doubt that I have led a sheltered, spoiled life in comparison with my parents, and their parents; my own children look pretty sheltered and spoiled to me. In the face of the current "me-first" culture, how can I inculcate in them an understanding that if something is worth having, it is worth working for? Now I think I should get down to what all this philosophising (or whinging) has to do with pounding brass.

As a group within the hobby of amateur radio, we Knights of the Key are a dying breed. We can all sit back comfortably and take pride in the way we operate, in the way we represent tradition, and in the way we could handle an emergency. But I don't think we have a lot to be proud of in terms of preservation of our species. Because of the disciplines imposed by the mode and our pride in our accomplishments we tend to set ourselves apart. We think of ourselves as an elite, and could not care less that other amateurs think we are a bunch of old-fashioned freaks.

Well, if this is freakishness, let's have more of it. We can beat a computer anytime, right? Yes and no. We can demonstrate superiority till the cows come home, but the computer is likely to win in the end because human nature will, like water and electricity, seek the path of least resistance. If people do not understand what we are doing, or think it's too difficult, they will ignore it and in some cases ridicule it.

If CW as a mode of operation is to continue to exist (and we are all agreed that it deserves to continue, I trust) then it follows that we must make some effort to bring newcomers into this hobby within a hobby and encourage their metamorphosis into brass-pounders.

To this end I would like to throw this column open to suggestions as to what incentives and techniques can be used to upgrade the image of CW operation among those who should be worthy candidates for the brotherhood.

Some of the ideas which are worth considering are awards and certificates, contests, a revival of the "Key Section".

I've often thought I should prepare a handbook for CW operation, based on this column, because as a beginner I had a lot of trouble figuring out how things should be done. Please write and let me know if you think such a book would be useful, and if so, what you think should be in it.

On the individual side, why not make it a point to enjoy at least one CW QSO every week with an operator who is much slower?

Well, there's some food for thought. Chew it over, and if you don't get indigestion, drop me a line with a suggestion or two (even rude suggestions will be treated as informative feedback!).

Next month we'll do a reprise on learning the code. 73 till then. **AR**

QSP

THEY'RE GOING TO BURN THE IONOSPHERE

The ionosphere over Tasmania will this month (July) have a 155-mile long hole burnt in it by the space shuttle Challenger.

The hole will be created by firing the shuttle's manoeuvring motors and also spurting water, carbon dioxide and hydrogen.

This will give scientists a chance to analyse the ionosphere, and a glimpse at stars which emit radio waves that normally won't penetrate the ionosphere.

The Australian Science Department's Antarctic Division will use the test to monitor the effect of changes in the ionosphere on satellite transmissions and the earth's magnetic field.

The hole will last until sunrise when solar radiation will recharge and restore the ionosphere.

Contributed by Jim Linton VK3PC

AR

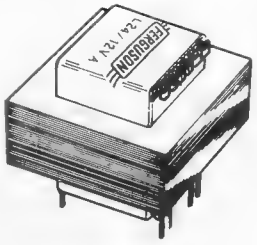
SEANET ANNUAL CONVENTION

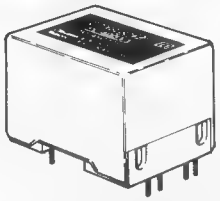
The 15th Annual Seanet Convention will be held in Cebu City, Philippines from 22nd November to 24th November 1985. Convention headquarters will be the Cebu Plaza Hotel.

Further details may be obtained from the Net at 1200UTC on 14.320MHz or from the Cebu ARL Inc, Box 304, Cebu City, Philippines. **AR**

PCB TRANSFORMERS

2.5/3VA



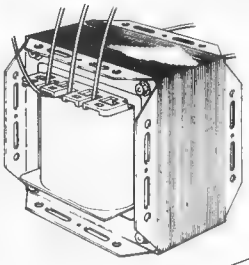


12/15VA

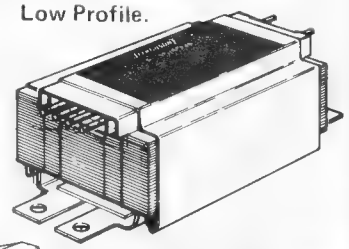
5/7 & 7.5/10VA

- Manufactured to AS3126 and Telecom approved
- Suit standard PCB grids and simplify construction

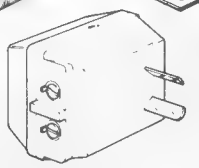
POWER TRANSFORMERS



Low Profile.



Conventional



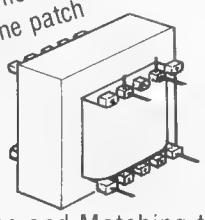
Plug Pack Adaptor

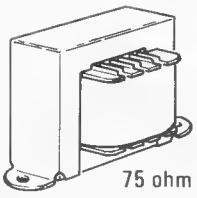
AUSTRALIAN MADE

- Wide range of secondary voltages from 1.5V to 115V
- Stock range has ratings up to 1000VA
- Special types for microprocessors, 115V etc

AUDIO TRANSFORMERS

PCB mounted phone patch





75 ohm to 300 or 600ohm matching transformer

- Line and Matching transformers up to 150W
- Power transformers for high power amplifiers
- Transistor drivers
- Special 'C' core transformers

Ask for MAL VK2BMS or DOUG VK2BPX

TALK TO FERGUSON - THE AUSTRALIAN COMPANY WITH NEARLY 50 YEARS EXPERIENCE OF MANUFACTURING IN AUSTRALIA FOR AUSTRALIAN CONDITIONS

Ferguson Transformers Pty. Ltd.
331 High Street, CHATSWOOD 2067 Tel: (02) 407 0261
Telex: AA25728. Melbourne (03) 328 2843

FERGUSON

AR85

Commodore takes command in radio communications with:

COM-IN 64

COM-IN 64 turns your Commodore 64 microcomputer into an advanced radio communications terminal for BAUDOT, MORSE, ASCII and SSTV, in addition to MODEM, PROGRAMME TRANSMIT and WORD PROCESSING CAPABILITIES.

HOW TO ORDER

Send mail order slip with payment or ring (08) 258 9928 or enquire at your local shop.

To: B.I.C.E.,
30 Noolinga Way,
SALISBURY NORTH,
SA 5108.

Please send ..... units of the COM-IN 64 at the price of $299.00 plus post $3.50.

NAME .....

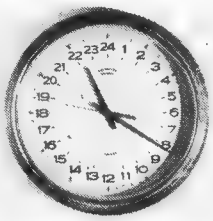
ADDRESS ..... *BANKCARD* ☐

..... *CHEQUE* ☐

P/CODE ..... *MONEY ORDER* ☐

BANKCARD No. ☐☐☐ ☐☐☐☐☐ ☐☐☐☐☐☐

Give your office, shack or computer room that professional touch with this handsome 24 HOUR CLOCK.



$75 + $4.50 p&p inc. tax

FEATURES:

- Large 10" Dial
- Glowing Walnut Finish
- Precision German Quartz Movement
- Will run for two years on a single battery

Clockworks of Canberra

VK1AP
41 Degraves Cres., Wanniassa
PO Box 148, Mawson ACT 2607
Phone: (062) 31 7995

AR85

PACKET RADIO

David Furst VK3YDF
57 Laity Street, Richmond, Vic. 3121

PACKET RADIO IN TURMOIL?

Letters have been received from Jon Bloom KE3Z of the ARRL and Lyle Johnson WA7GXD of Tucson Amateur Packet Radio (TAPR) in response to my November 1984 article. I apologise for not answering these letters sooner and trust that the following will be sufficient answer to this correspondence.

The gist of the arguments raised by both American letters was that the AX.25 protocol is superior to the Vancouver protocols, that anyone using the Vancouver protocols was likely to cut themselves off from the rest of the world and that the hardware standard I proposed in that article was not appropriate.

Following the above correspondence an article has appeared recently in another magazine which requires some clarification. Many of the points it raises re-iterate things said in the American letters.

I take this opportunity to write a combined reply to all the above material.

In particular I feel that the magazine article has misrepresented me and my comments rather unfairly. I will not stoop to such personal attacks and I expect no less of others. To criticise a pioneer in a new field for an article published six months ago and written eight months ago is easy with the benefit of hindsight.

The magazine claims Packet Radio to be stricken by rifts, petty politics and conflicting interest groups. It also contains many errors and inaccuracies.

Many misconceptions about the Vancouver Protocol are put forward — amongst others that it *'unfortunately almost set Packet Radio back enormously.'* Vancouver was where Packet Radio was born. It was invented and implemented by Doug Lockhart VE7APU who can be considered the father of Packet Radio. Doug still inputs all he can both to the AX.25 and Vancouver projects.

One misconception appears to be that those of us who propose the Vancouver Protocol as a standard want to close Australia off from the advantages of overseas communication with AX.25 satellites, gateways, etc. We have had an AX.25 option on our systems from almost the time that AX.25 first surfaced. This is more than can be said of TAPR TNCs. The present TAPR TNC does not implement Vancouver 2. The new TAPR 'Tiny TNC' does not implement either Vancouver protocol.

I was criticised for the suggestion that the TAPR people did not make their AX.25 code available. In reality, after I made that complaint TAPR released the software and THEN stated that my criticism was invalid. At the time I wrote those comments the code was not available and it was not policy to release it. We would very much like to put the latest version of the AX.25 software onto our TNCs. Such a large point is made of how freely 'available' it all is. We've had our order in for the new software since January and it still hasn't arrived.

Much is made of how many AX.25 implementations have been released and how wrong I was about there only being the TAPR machine available. This is a distortion of my comments. There was also the GLB board available at that time. In the Melbourne group we obtained both the TAPR board and also the GLB board for evaluation before making our choices.

The Americans at that time were going in all directions and my major proposal was for a hardware standard which was easy to develop software for and which would stay with us for a long time. I criticised the American effort for their choice of processor for which few people could write code (the 6809).

TAPR developed their TNC and have sold over 2,000 of them. Harold Price, who developed the software which runs on it, (using an HP64000 which few of us have access to) has since become involved in so many organisations that the software development has stopped and is unlikely to re-start. TAPR don't supply these TNCs any more. It is worth noting that Doug Lockhart (of Vancouver) suggested to the ARRL that X.3 and X.28 standards be adopted for talking betwen TNCs and computers, which the ARRL have endorsed. TAPR have said that they'll stick with what they already have.

It was implied that the TAPR unit is cheaper than the Vancouver Unit. When TAPR still supplied it, it cost $240 — American. First add about $100 to account for the weakness of the Australian Dollar. Then add 5 percent duty ($17). Finally add 20 percent sales tax ($71) for a grand total of $428. The Vancouver unit can be built up here in Australia for around $200.

The Americans have followed an interesting path. Their first phase was the TAPR board. Then followed a phase where they developed lots of other boards and systems. Most recently they discovered the Xerox 820 computer and moved things across to that. A word about the Xerox 820. It has a Z80 processor and runs CP/M. They did that because lots of people have plenty of expertise with the 8080/Z80 family of processors and CP/M. Now they have released the TAPR II — their 'Tiny TNC'. It also uses a Z80. My point is that I originally proposed standardising on 8080/Z80 family processors and that the Americans have (belatedly) shown me right by their actions. They are using battery backed up RAM, lots of CMOS components, single voltage supply, lower supply drain and have priced it under $200. I proposed all these things in that article written eight months ago.

TAPR are not sure when this TNC will be available. They won't put you on a waiting list for it either. The Sydney Amateur Digital Communications group have already got a couple of prototypes of a new 'Australian' TNC going and they will be releasing it in August/September. It has all the above (and more). Much more, because it will talk AX.25, Vancouver V1 and V2.

Put bluntly the AX.25 proponents would like it believed that we are trying to kill off AX.25. We are not about to try to take on the might of the USA. We want an orderly development of Australian Packet Radio on hardware that the Americans themselves have endorsed. We do not believe that AX.25 is the 'be all, end all' of protocols — neither do the Americans. The 'Tiny TNC' has AX.25 mark I AND AX.25 mark II. (Yet another protocol). We believe that there is much work to be done in this area and we are doing it. If there are some responsible choices of hardware made, no-one need be left behind as the technology develops. As it is, all those 2,000 owners of TAPR I TNCs appear already to have been dumped by TAPR while the owners of the original Vancouver TNCs still have very usable systems.

The magazine article makes much of the digipeating possibilities of the AX.25 protocol and later admits that most of these abilities contravene our Radio Communications Act. The wording leads to the mistaken impression that the AX.25 system allows you to do what is illegal under the Vancouver system. It does not.

Consider this: *If digipeating is so hot why haven't there been reports of huge networks and long distance multi-digipeat contacts in all the magazines?* The answer is a bit technical, but it boils down to the fact that on a long link you can't get a message and acknowlege packets up and down reliably. When the errors do come along the ACKs and NAKs flying up and down the system bring it to a standstill. The XA.25 system was limitations in this area which the Vancouver protocol does not. The Americans keep talking about level three (in language sounding rather like Vancouver V2) but no code or results have been seen thus far. On the other hand many Vancouver proponents here and overseas have been working on Level 3 networking and we will likely be testing such a system by the time this article appears in print.

The article confuses the V1 and V2 protocols and is accurate about neither. It states that the address field allows only two Bytes of information which will allow only 256 addresses; that we must keep a list of who has which address; that the address field limits the amount of data; that some of us are stuck with V1 and that the Vancouver board is not intelligent.

Anyone will tell you that in two Bytes (16 bits) there are 65,536 possible addresses. V2 allocates these numbers automatically and we don't even need to know what they are. As for the address field limiting the amount of data; what about AX.25 with up to 8 fields of 6 characters? — not that this limits data either. It just slows down the channel with a lot of useless information. None of us is stuck with V1, we can and do upgrade frequently. As for the board not being intelligent it just isn't so.

The magazine editor says *that there is a need for more articles on the subject preferably written by someone with more in-depth knowledge of packet radio than I can claim.'* On the strength of the above, I can only concur.

He further claims that *'there are those who would dearly love to leave this mode shrouded in mystery.'* I am at a loss to know who he's talking about. I for one do many talks to groups, write articles, talk about it on the repeaters and generally spend a lot of time working for nothing when I could be in the arms of a lovely lady!

There should be some mention of the achievements of the two Vancouver oriented packet groups in Australia. The Sydney group has been testing a digital repeater for a couple of years and have been running a bulletin board for almost all that time. The Melbourne group has been running a repeater on test for six months and it is now licensed. They have been running a bulletin board for a year.

The article further states: *'In April 1982, there was not a single soul to be found in Australia who was using the new mode'* (Packet Radio). Elsewhere it says *'Packet radio had its Australian beginnings in Sydney in the early '80s.'* Which is it Sir? The Sydney Amateur Digital Communications group was certainly going at that time.

Further, there are only two groups of Packeteers. Those who want only AX.25 and those of us who want Vancouver, but are willing to put the very latest and best of AX.25 into our TNCs but can't get it. The reference to an 'old guard' who want nothing to do with AX.25 is simply not so.

The suggestion that the Sydney Amateur Digital Communications Group has 'splintered' with some people leaving to form the TAPR Users Group is also not so. The TAPR Users Group is an entirely new group composed of new people. They are not disenchanted ex members of the SADCG.

I was taken to task for implying that AX.25 software is limited to the 6809 processor — I said nothing of the sort.

It is suggested my complaint that the Americans did not even consider the V2 protocol as a Packet standard is unfounded because V2 was not in widespread use. Of course it wasn't. It was the 'newest kid on the block'. I believe that future developments in level 3 networking will prove it superior to AX.25.

The essential difference between the AX.25 and Vancouver camps is that the Vancouver protocol was developed by Doug Lockhart VE7APU who has been involved with commercial packet communications for many years (with IBM) and can rightly be considered a pioneer in that area.

AX.25 by comparison, was designed by a committee. Lockhart's work displayed an intimate knowledge of the complications and requirements of the higher levels of packet protocols and thus ensured a sound foundation on which to build. It is my opinion that this is less true of the AX.25 protocol. Time will tell.

I am castigated for saying that the American approach was aimed at appliance operators. I have nothing against appliance operators, however when the effort is aimed at them to the point of discouraging experimentation (which it was at that time) I have the gravest objections. It is a matter of much satisfaction that the Americans have started encouraging experimentation by individual amateurs.

Then there are the comments about me criticising the TAPR board for its 6809 processor and the consequent difficulty in software development. TAPR themselves have dumped this processor with the release of their new TNC. The information that AX.25 code will run on Vancouver TNCs is no surprise to those who own them.

Next quote: *'Furst has raised the ire of local and overseas packet users, as evidenced by the amount of mail in response to the comments made in Amateur Radio.'* To my knowledge the only letters received were those two noted above. In fact my phone number was on that article so that people could criticise me easier. Not one phone call was received on the subject — not even from the magazine editor.

Once more: *'Lyle Johnson WA7GXD, President of TAPR, responded to Furst by saying his comments were "erroneous and perhaps misleading". Johnson states that the first Tucson TNCs were developed "for about half the price" of the VADCG TNC and the "Bell 202" modem required to use it.'* The operative expression in the price argument is 'and the Bell 202 modem required to use it'. The modem was the expensive part. They should have done what the group in Sydney did when they developed a cheaper, specialised modem. Lyle Johnson continued: *'But TAPR will continue to make the (TNC) kit available'.* 'Gateway — The ARRL Packet-Radio Newsletter' of 7 May, 1985 states 'The TNC 1 is no longer produced by or available from TAPR'.

Mr Johnson goes on to say that *'there is no harm in multiple TNC designs'* and criticises me for proposing another. My design standard was an old one which was based on the essential parts of the Vancouver design and put forward in the interests of maximum compatibility. I note with interest that his organisation has adopted so many of my recommendations.

Both American writers contend that development of the AX.25 standard was to remedy deficiencies in the Vancouver standard of the time and that the development of new hardware was likewise to address problems with that. Surely it would have made more sense to develop along established lines rather than chart entirely new waters by so radical a departure in both areas? By doing so they immediately created a split in the rather small Packet Radio community of the time. Neither the protocol nor the hardware justified so great a change. Without being ungenerous I can only speculate that these changes came about because someone wanted to 'Americanise' the Packet Radio which someone else had invented.

The article further states: *'What we do advocate is a rational, experimental approach that does not rule out any available option until proven one way or another'.* Surely our approach of a common 'hardware bus' which can run any protocol and will not have to be thrown out if and when a 'perfect protocol' comes along is just that?

The point is made that the TAPR Users Group will have to guard against isolating themselves from the existing V2 systems. We wholeheartedly agree and wish to point out that our repeaters will already repeat AX.25 and will continue to make such provision. Anyone who wishes to use our installations for AX.25 work is more than welcome to do so.

More: *'Canada and Australia are the only countries experimenting with Vancouver protocol on a large scale and stand to isolate themselves from the rest of the world if they do not adopt a more flexible attitude.'* Given all the above it strains my imagination to see just how we could be more flexible. Would you have us exclude any other technology just because the Americans don't like it?

There is a common thread of misconception throughout the article implying we won't be able to use Oscar 10, JAS-1, PACSAT and other services. *1 We do have and will continue to have AX.25 on our TNCs. 2 It is not envisaged that everyone will talk directly to a satellite, but through a 'gateway' which can translate between protocols — and you won't even notice it happening!*

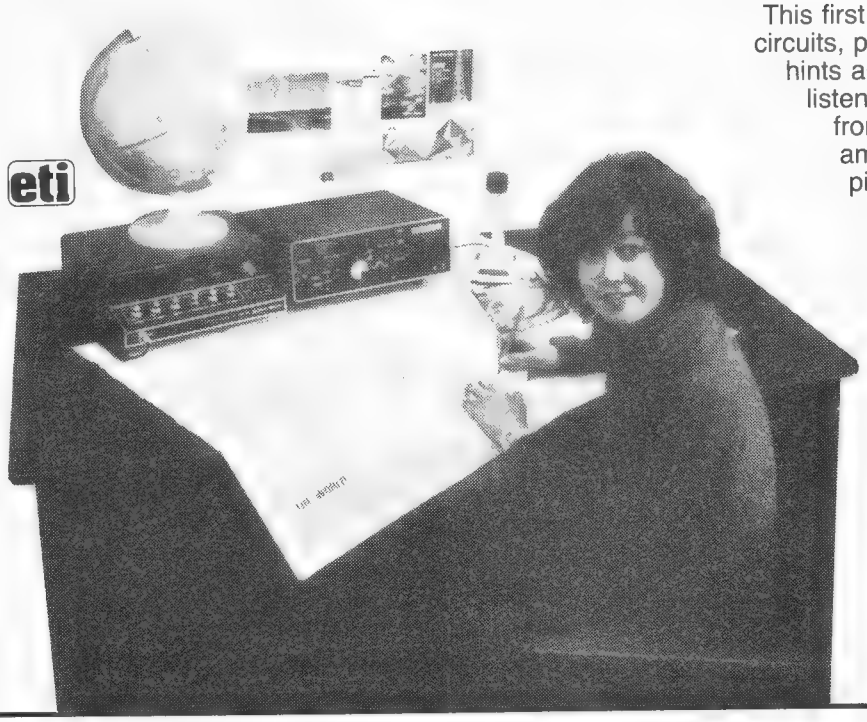
In conclusion the magazine recognises merit in the Vancouver approach by admitting it *'is more "time efficient" than AX.25'*; that there are many *'Australian Amateurs now competent in writing software for this protocol on popular CP/M computers; that there is a high level of expertise here to develop the hardware; and that the hardware is relatively cheap to acquire and appears to be likely to become cheaper still.'*

A final suggestion is that we *'should use every resource available to ensure that Australia has the best, most flexible packet system in the world'.* A view many of us have dignified by working hard towards it.

I regret that this dissension has arisen. Why, oh why, don't we all go back to where the spirit of Packet Radio was a year ago when we all knew what we were talking about, not bickering, but working towards a common goal?

AR

RADIO EXPERIMENTER'S HANDBOOK



This first volume is 132 pages chock-full of circuits, projects to build, antennas to erect, hints and tips. It covers the field from DX listening to building radio-teletype gear, from 'twilight zone' DX to VHF power amplifiers, from building a radio FAX picture decoder to designing loaded and trap dipoles. This book carries a wealth of practical, down-to-earth information useful to anyone interested in the art and science of radio. Your copy is available by mail order for $7.95 plus $1 to cover postage and handling (add $5 to these charges for air mail postage outside Australia) from:

Federal Marketing
P.O. Box 227
Waterloo, N.S.W. 2017

AR85

EDUCATION NOTES

Brenda Edmonds, VK3KT
FEDERAL EDUCATION OFFICER
56 Baden Powell Drive, Frankston, Vic 3199

TRIAL AOCP EXAMINATION

Select the correct alternative.

1 This graph shows the output current of a:

a *balanced modulator.*
b *full-wave or bridge rectifier.*
c *reactance modulator.*
d *dual voltage power supply.*

2 The sidebands of an FM amateur transmission:
a *should not be more than 3 kHz wide.*
b *occur only on one side of the carrier.*
c *occur at multiples of the modulating frequency.*
d *add to the power of the carrier.*

3 The SWR measured at the output of a 435 MHz transmitter is 1.1 : 1, but at the antenna it is 3 : 1. This may be because:
a *the antenna is resonant at 435 MHz.*
b *of a severe transmitter to feeder impedance mismatch*
c *of excessively lossy coaxial cable being used.*
d *the UHF SWR meter introduces a severe power loss.*

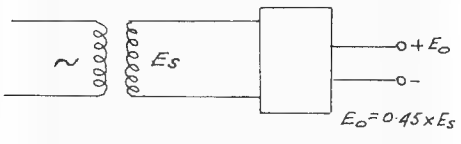
4 The power amplifier in a 144 MHz transmitter is driven by a tripler which is not neutralised because the:
a *low power stages do not suffer from positive feedback.*
b *drive circuit incorporates negative feedback.*
c *power amplifier provides a passive load for the tripler output.*
d *tripler input frequency is one third of the output frequency*

5 A bipolar transistor will have a current gain of less than unity:
a *in a common base configuration.*
b *in a common emitter configuration.*
c *in a common collector configuration.*
d *when used in an oscillator circuit.*

6 A step down transformer has an impedance ratio of 64 : 1. If the input voltage is 120 V AC, the output voltage will be:
a *about 2 volts.*
b *15 volts.*
c *240 volts.*
d *960 volts.*

7 Typical amateur repeater offset frequencies in Australia for systems operating on 146 MHz and 438 MHz are respectively:
a *600 kHz and 5 MHz.*
b *5 kHz and 600 kHz.*
c *600 Hz and 5 kHz.*
d *500 Hz and 5 MHz.*

8 The device in box B is probably a:



a *filter.*
b *voltage doubler.*
c *bridge rectifier.*
d *half wave rectifier.*

9 A capacitor functions as a result of the:
a *storage of energy in an electrostatic field.*
b *storage of energy in an electromagnetic field.*
c *dielectric charge.*
d *accumulation of electrons on the positive plate.*

10 In a direct conversion receiver, good selectivity is achieved by:
a *the IF stages.*
b *using a narrow band audio filter.*
c *low distortion audio amplifier stages.*
d *a tunable beat frequency oscillator.*

11 The reading on a dip meter reduces sharply when it is coupled to a circuit:
a *and is tuned to the resonant frequency of that circuit.*
b *because at resonance it absorbs power from the circuit.*
c *because the impedance of a parallel tuned circuit is lowest at resonance.*
d *which is energised*

12 A hot carrier diode may be used:
a *as a rectifier in a high current power supply.*
b *where high heat dissipation is required.*
c *as a rectifier at microwave frequencies.*
d *to replace a varicap diode for tuning at VHF.*

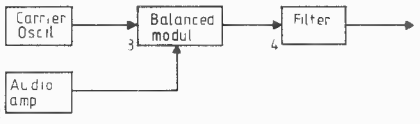
13 To check the linearity of an SSB transmitter to two tone audio test signal is applied. A sample of the transmitter's output is connected to:
a *a wave form generator.*
b *a sweep generator.*
c *the vertical deflection plates of an oscilloscope.*
d *an output power meter.*

14 Crossmodulation occurs when:
a *two signals of precisely equal input strength are received at once.*
b *the modulation of a strong unwanted signal is transferred to the desired signal.*
c *two transmitters are operated in close proximity to each other.*
d *signals are rectified in the receiving antenna.*

15 HF multiband transmitting antennas should preferably be used with an antenna tuning unit to reduce the:
a *radiation of harmonics.*
b *angle of radiation.*
c *height of the antenna.*
d *generation of intermodulation products*

16 The maximum deviation commonly used in amateur FM transceivers at 144 MHz is:
a *5 MHz.*
b *600 kHz.*
c *15 kHz.*
d *5 kHz.*

17 The frequencies which occur at significant levels in the output of block 3 should be:



a *AF, RF, sum and difference of AF and RF.*
b *AF and RF only.*
c *sum of AF and RF only.*
d *sum and difference of AF and RF.*

18 A receiver's ability to reject unwanted signals is limited by:
a *crossmodulation of weak adjacent frequency signals.*
b *the skirt response of the selectivity circuits*
c *generation of harmonics at the transmitting station.*
d *AF distortion products generated in the detector stages.*

19 A 5/8 wavelength vertical antenna is:
a *does not require earthing of the radials.*
b *may use a loading coil to make it an electrical 3/4 wavelength.*
c *has a higher angle of radiation than a 1/4 wavelength vertical antenna.*
d *uses its built-in capacitance to reduce it to an electrical 1/2 wavelength.*

20 A solid state device having four semiconductor layers but only three terminals could be a:
a *NPNP bipolar transistor.*
b *bridge rectifier.*
c *silicon controlled rectifier.*
d *dual gate FET.*

21 The 'skip' distance at HF will depend on the:
a *radiation angle and virtual height of the ionosphere.*
b *frequency of local weather changes.*
c *conductivity of the surface over which the wave travels.*
d *height of the troposphere.*

22 An electret microphone works on the principle that:
a *external bias is required.*
b *its changing capacitance will alter the input frequency.*
c *a permanent electric charge on the plates provides bias for the amplifier.*
d *sound waves cause its capacitance to change with consequent output voltage variations.*

23 The addition of extra elements to a Yagi antenna will result in increased:
a *bandwidth.*
b *side lobe radiation.*
c *forward gain.*
d *SWR.*

24 A voltage measuring device incorporates a diode in its probe. It is likely to be used to measure:
a *very high pulse voltages only*
b *DC voltages.*
c *RF voltages.*
d *very low AC voltages only.*

25 The rating of a fuse in a transmitter power supply should be approximately:
a *3 to 5 times the expected current.*
b *twice the power output of the transmitter.*
c *1.5 times the current used the output stage.*
d *10-20% higher than the expected current.*

26 In a transmitter using low level modulation:
a *no audio amplifier stage is used.*
b *all subsequent amplifier stages must be linear.*
c *the oscillator output must be low*
d *the modulation is applied to the buffer stage.*

27 To calculate the DC input power to the final stage of a transmitter it is necessary to know the:
a *cathode current.*
b *control grid current and screen grid voltage.*
c *screen grid current and cathode voltage.*
d *anode current and anode voltage.*

28 A common application for a field-effect transistor is:
a *in high voltage, high current power supplies.*
b *to control the series current in a regulated DC power supply.*
c *as a high impedance input amplifier.*
d *as a linear detector for high fidelity reception.*

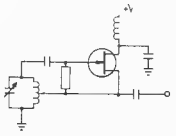
29 The specifications for a device state, in part, '−20 dB quieting with 0.25 uV input signal'. This refers to the:
a *image rejection by a superheterodyne receiver.*
b *sensitivity of an FM receiver.*
c *carrier suppression in an SSBSC transmitter.*
d *quality of the noise limiter in a direct conversion receiver.*

30 To stabilise the output of a 150 V DC power supply we could use-
a *a gaseous regulator tube.*
b *five 30 V zener diodes in parallel.*
c *a voltage divider network.*
d *a choke input filter.*

31 An unstable output at VHF from a 3.5 MHz transmitter implies:
a *excessive harmonics.*
b *rectification in the antenna.*
c *an oscillating power amplifier stage*
d *mixing with RF from a nearby television receiver oscillator.*

32 One difference between Class AB 1 and Class AB 2 amplifiers is that:
a *Class AB 2 amplifiers need less driving power*
b *Class AB 2 amplifiers operate without any standing anode current.*
c *grid current does not flow in Class AB 1.*
d *two valves in Class AB 1 in push-pull will cancel out odd harmonics.*

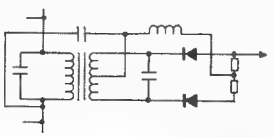
33 The type of oscillator shown is a:



a *Hartley*
b *Colpitts.*
c *Armstrong.*
d *Clapp.*

34 To prevent direct radiation of interference from an amateur transmitter it is important to:
a *check the SWR at the transmitter output.*
b *ensure that the transmitter is adequately screened.*
c *install an antenna tuning unit in the feedline.*
d *monitor the output on a spectrum analyser.*

35 This circuit represents part of a:

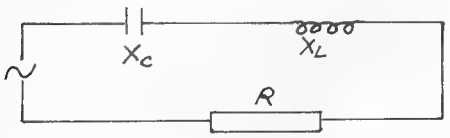


a *frequency doubler.*
b *product detector.*
c *FM discriminator.*
d *full wave power supply.*

36 A multiband dipole can be fed with a single transmission line because:
a *this produces a more omnidirectional radiation pattern*
b *each dipole presents a high load impedance at other than resonant frequencies.*
c *this produces a uniform vertical radiation pattern on all bands.*
d *a ten metre dipole can act as a matching stub for the longer dipoles.*

37 Ground wave propagation:
a *is not possible across large bodies of salt water.*
b *can be carried out over longer distances on HF than on VHF.*
c *will vary according to the time of day and the sunspot cycle.*
d *can only be used for vertically polarised transmissions.*

38 In this circuit the total impedance (Z) is given by the formula $Z =$:



a $X_C + X_L + R$
b $R + (X_L \quad X_C)$
c $\sqrt{R^2 + X_L^2 - X_C^2}$
d $\sqrt{R^2 + (X_L \quad X_C)^2}$

39 An advantage of the point contact diode over the junction diode is that:
a *it does not require high purity semiconductor material.*
b *it can be manufactured in a smaller package.*
c *the lower capacitance allows operation at higher frequencies.*
d *temperature sensitivity is higher*

40 An HF amateur transmitter may produce spurious emissions at VHF. The cause can be identified by using a:
a *sensitive tunable absorption wavemeter.*
b *nearby television receiver.*
c *RF power meter.*
d *RF voltmeter*

41 Inductances of 20, 30 and 60 Henries are connected in parellel. Ignoring mutual inductance the total will be:
a *110 H.*
b *60 H*
c *37 H.*
d *10 H.*

42 Marker crystals are often used to:
a *allow simultaneous transmission on several harmonically related frequencies.*
b *calibrate receivers at the band edges.*
c *check for overmodulation.*
d *calibrate the BFO.*

43 A filter has several series and parallel resonant circuit combinations, it is probably a:
a *high pass filter.*
b *low pass filter.*
c *band pass filter.*
d *mechanical filter*

44 When an alternating voltage is applied to a capacitor, the relationship of the voltage to current is:
a *90° out of phase, current leading.*
b *90° out of phase, voltage leading.*
c *180° out of phase.*
d *in phase at all times.*

45 Hysteresis losses in an iron-cored transformer are due to:
a *the resistance of the wire of the coils.*
b *localised electrical currents in the core.*
c *the extra bulk of the insulation of the coil wires.*
d *the opposition to a change of the magnetic state of the core*

46 The "D" layer of the ionosphere:
a *is more dense at night than by day*
b *absorbs MF signals more than HF signals.*
c *is the layer furthest from the earth*
d *is present only at the peak of the sunspot cycle.*

47 As a safety precaution, before working on a transmitter which has recently been used, it should be disconnected from the mains and:
a *have the microphone removed.*
b *have the fuse removed.*
c *the power supply capacitors should be discharged.*
d *the transmitter earthing strap removed.*

48 The standard colour coding for 240 VAC power leads in Australia is:
a *active red, earth blue.*
b *neutral blue, earth brown.*
c *active brown, neutral blue.*
d *neutral brown, earth green and yellow.*

49 A 'temperature inversion' causes:
a *the air temperature to increase with an increase in altitude.*
b *ionization along a cold front.*
c *improved HF propagation.*
d *VHF signals to be trapped above the inversion layer.*

50 The actual output frequency of a fifth overtone crystal oscillator may be:
a *exactly 5 times the crystal frequency.*
b *one fifth of the crystal frequency.*
c *slightly offset from the fifth harmonic of the fundamental crystal frequency.*
d *adjustable over a 20% range of the fundamental crystal frequency.* **AR**

INTRUDER WATCH

Bill Martin, VK2COP
FEDERAL INTRUDER WATCH CO-ORDINATOR
33 Somerville Road, Hornsby Heights, NSW 2077

It was interesting to note, as I looked through some Intruder Watch figures lately, that, for the last three years, most intruders were reported in September of each year. I can't guess what this means. We can't assume that intruder activity is greatest in that month, as it may be that OBSERVER activity is greatest in September. I favour the latter theory, and suspect that, with the coming of Spring, and the temperatures in the various shacks becoming more conducive to radio activity, more observers are doing more monitoring than in colder months.

THANKS TO OBSERVERS

The time-lag between processing all the reports received and the lead-time for this column means that thanks to contributing observers are very often belated. However, if you keep that in mind, I now take the opportunity to say thank you to those who sent in reports for February last. VK2BQS, VK2DAT, VK2DEJ, VK2PS, VK2PWS, VK2QL, Arthur Bradford (SWL), VK3PIW, VK3XB, VK3XU, VK3YF, VK4AKX, VK4BG, VK4BHJ, VK4VFG, VK5AOZ, VK5BJF, VK5GZ, VK7RH, VK8HA.

With Spring only a few weeks away, when the shacks will start to warm up, wouldn't it be nice if some more amateurs and SWLs sent in some reports of intruders they hear on the amateur bands? There are plenty to choose from, and I'm sure that the above-mentioned workers wouldn't mind at all if others lend a hand.

NEW CO-ORDINATOR

News has come that we have a new IW Co-ordinator in the ACT Division. Ray Roche VK1ZJR, PO Box 81, Campbell, ACT 2601, has taken up the challenge, and we offer a warm welcome Ray to the ranks of intruder watchers. Any reports from the VK1 area can now be sent direct to Ray.

RE-PRINTED HANDBOOK

Recent enquiries reveal that the new edition of the "Amateur Operators' Handbook", was in fact printed, and was available at the Government printing office, but was subsequently withdrawn from sale due to printing errors. However, by the time this column appears, all should be rectified, and the publication should be back on the shelves (a re-printed edition). This handbook is a must for every Amateur Shack, and, of course, the aspiring amateur licensee must have a copy to study the regulations, not only to obtain a pass mark in the regulations examination but to acquaint him/herself thoroughly with the regulations in force at the time so as to save embarrassment on air. That may save them the panic I went through on one occasion, when, as a Novice licensee, a JA asked me to QSY up the band, which I did, and when I realised I had moved up right out of the Novice segment, I was back in about a micro-second!

LEND-A-HAND

A special appeal goes out this month to VK7 amateurs and SWLs to lend a hand with intruder watching. If you have any enquiries in VK7 re the IW, drop a line to Robin VK7RH (QTHR), the Tasmanian Co-ordinator, who will assist you to assist us to assist you (what'?). Robin is waging a lonely war against intruder stations from down south, and could do with some help. Athol VK7LR is helping, but what about some others chipping in. I have the worked 100 Tasmanian Devils Award, so I KNOW there are more active amateurs in Tassie than Robin and Athol! *What about making it a Club project for, say, one month, to see what you can come up with?*

DISTURBING NEWS

Disturbing news to hand that a ship, currently in the Marshall Islands (at the time of writing), is passing commercial traffic in the AMTOR mode on 14.069 MHz, and that two American amateurs are involved. This is disappointing news, and we hope that the FCC will get something done about it. I have been in touch with the Region 2 IW Director in Washington, and hopefully he will be able to get moving on the matter.

Well, that's about all for the month, see you next time, and let's all try to band together and use kinetic energy to get the solar cycle to get moving upwards!

AR

MAGAZINE REVIEW

Roy Hartkopf, VK3AOH
34 Toolangi Road, Alphington, Vic 3078

(G) General. (C) Constructional. (P) Practical without detailed constructional information. (T) Theoretical. (N) Of particular interest to the Novice.

HAM RADIO. March 1985. Radio Astronomy. (G.N.) Harmonic Signal Mixer. (P) Low Voltage Power Supplies. (P.N.) Rhombic Antennas. (T) List of VHF/UHF Publications. (G.)

SATELLITE JOURNAL. April 1985. General News. Beginner's Guide. Index of Co-ordinators. (G)

RADIO COMMUNICATION. May 1985. Cumulative Index, 1980-84. (G) VHF/UHF Front End Design. (T)

73 MAGAZINE. April 1985. Low Noise 2m preamp. (P) Ishmod's Journal. (AF) Rubber Duck "Hat-tenna". (P) Commercial RTTY. (G)

73 MAGAZINE. May 1985. Special Antenna Issue, including HF Band Discone Antenna. (G)

QST. April 1985. Variable Reference Oscillator. (P) CW Demodulator. (P) Resonance. (N)

BREAK IN. April 1985. Annual reports and remits. (G)

WORLD RADIO. April 1985. World Radio News. Turkey's First Amateur. New Products. Satellite News etc. (G)

AR

ALARA

Australian Ladies Amateur Radio Association

Margaret Loft, VK3DML
28 Lawrence Street, Castlemaine, Vic 3450

Well this is ALARA's big month when we reach the grand old age of TEN YEARS; what a milestone and certainly one the founder of LARA can be justly proud of.

At our get-together at Mildura last September Norma was presented with a bouquet and I quote her reply *"ALARA started because I was bored; Too many old ladies; There weren't enough old ladies and there weren't enough young ladies either, they were all men. It was a traditional old story, when you visited an amateur where do you go? You go to the shack with the fellas, or into the kitchen with the ladies, so I thought we had better do something about it and try to get the ladies together. The original idea wasn't necessarily that all the ladies get their licence, but somehow or other that got changed. The idea was to all get together and have family outings, the ladies and men together, and have a good time.*

I am very proud to see what it has turned into."

CELEBRATIONS

VK3: Is having a luncheon at the Moorabbin Radio Clubrooms, Turner Road Reserve in Highett from 11.30 am on Saturday 27th July.

Please bring a plate of food to be shared; cutlery and crockery. Tea and coffee will be provided. Please notify Bron VK3NTD for further details.

VK4: Are also having a luncheon at Redcliffes on Saturday 27th July; details from Margaret VK4AOE or Josie VK4VAN.

VK6: Lunch was on 21st June as this suited the YLs better than July.

Welcome to a new member — Lynda Francis from WA, the daughter of Poppy VK6YF.

On a sad note ALARA has lost three members this year; condolences are extended to the families of Margaret VK2AHD; Verle VK2MR and Valerie VK4FKL.

ALARA CONTEST MANAGER

Marlene VK2KFQ has offered to wear the hat of contest manager for the incoming committee. My thanks to you Marlene for your offer and I do hope you enjoy your involvement with the task.

AGM

Most positions for the new committee are filled now, but please, if you feel you can help in any way, write to Jenny VK5ANW and offer, new ideas and new faces are always welcome.

MINI CONTEST

To coincide with our tenth birthday on the 6th July activity day, a mini contest is being held.

Contacts to be on the novice section of 80, 15 and 10 metres.

Phone and/or CW may be used.

YLs to contact YLs only (not necessarily ALARA members).

Each station can be worked ONCE ONLY.

A special mystery prize will be awarded to the YL who has had the greatest number of contacts (if a draw the YL with the most prefixes wins).

Send your log to Contest Manager VK2KFQ, 31 Cadell Street, Wentworth, NSW 2648 by 27th July 1985.

This will be my last report for ALARA in AR. After nearly six years it is a sad day for me, but it is time someone else has a say for you.

My very sincere thanks to all who have helped me with the column. To those who produce AR the best of luck in the future, the magazine is a credit to you all. I am going to sit back and look forward each month to what our next Publicity Officer has contributed instead of looking to see if my column turned out the way it was intended.

All the best to you all
33/73/88

LIST OF MEMBERS AS AT 21ST MAY 1985

		Joining Date
VK1NEJ	Charlene	21 Feb 82
VK2ACP	Kathleen	1 Oct 80
VK2DIX	Joyce	22 Jul 80
VK2DJO	Norma	20 Aug 75
VK2DVL	Beryl	11 Aug 79
VK2EBX	Joy	25 Jan 80
VK2HD	Heather	22 Oct 76
VK2KFQ	Marlene	11 Nov 83
VK2KYL	Betty	9 Mar 81
VK2MI	Joyce	5 Nov 76
VK2MV	Margaret	20 Mar 82
VK2NKN	Maree	6 Aug 81
VK2NVQ	Dorothy	17 Mar 83
VK2PNG	Margaret	23 Mar 81
VK2PSC	Suzanne	20 Oct 82
VK2PXS	Bobbie	6 Oct 77
VK2SU	Freda	26 Jul 80
VK2YQK/VKD	Wendy	20 Mar 82
Jean Darling		23 Nov 83
VK3AGO	Lorrie	6 May 79
VK3AYL	Rae	20 Apl 76
VK3BIR	Mavis	23 Aug 75
VK3BJB	Joan	2 Aug 76
VK3BRE	Mona	1 Sep 76
VK3BTU	Janet	1 Sep 77
VK3BYK	Barbara	1 Feb 84
VK3BYL	Anne	14 Nov 76
VK3CVW	Valerie	22 Feb 85
VK3CWA	Margaret	25 Mar 81
VK3CYL	Kim	8 Nov 83
VK3DML	Margaret	8 Jun 77
VK3DMS	Marilyn	24 Oct 77
VK3DVT	Valda	25 Mar 81
VK3DYL	Gwen	20 Apl 81
VK3HQ	Marjorie	3 Oct 76
VK3KS	Mavis	22 Aug 75
VK3NLO	Joan	19 Oct 81
VK3NMM	Nita	17 Nov 76
VK3NTD/XTD	Bron	6 Nov 82
VK3PBL	Bonnie	11 May 83
VK3PEH	Dale	26 Nov 82
VK3PIP	Alma	4 Mar 85
VK3PRC	Judy	29 Mar 84
VK3UE	Clarice	29 Oct 76
VK3VAN	Jessie	12 Feb 81
VK3VBK	Joyce	17 Mar 79
VK3YL	Austine	5 Apl 76
Jean Truebridge		3 Aug 75
Kate Duncan		11 Aug 75
Raedie Fowler		16 Nov 76
Muriel May		9 Jun 79
Bronwyn Lewis		2 Oct 80
Rita Astbury		26 May 83
Alice Crain		9 Oct 83
Jean Shaw		12 Dec 83
Edna Sandford		17 Feb 85
VK4ACJ	Sandra	22 Jul 80
VK4ABM	Chris	14 Jul 79
VK4AOE	Margaret	10 Oct 80
VK4ATK	Connie	1 Sep 82
VK4BDH	Dulcie	6 Jan 81
VK4BSQ	Wendy	2 Mar 82
VK4FAB	Anne	12 Jun 81
VK4FFQ	Lori	27 Jun 84
VK4JFA	Phyl	12 Jan 81
VK4NAM	Dorothy	21 May 76
VK4NEZ	Heather	16 May 83
VK4NNJ	Valarie	21 Aug 79
VK4PZ	Mary	9 Mar 81
VK4QW	Cecily	9 Sep 83
VK4VAN	Josie	27 Feb 85
VK4VNK	Jill	8 Oct 84
VK4VR	Val	7 Apl 83
VK5ANW	Jenny	21 Apl 76
VK5AOV	Meg	26 Nov 83
VK5BJH	Joyanne	30 Mar 81
VK5BYL	Judy	20 Mar 82
VK5LM	Lorraine	4 Apl 76
VK5PWA	Carol	14 Jul 83
VK5QO	Marlene	12 Feb 81
VK5YJ	Joy	14 Jul 79
VK5YL	Denise	20 Apl 76
Pauline Keon		24 Dec 83
VK6DE	Bev	2 Mar 80
VK6HI	Helene	23 Nov 83
VK6KYL	Diane	14 Jul 79
VK6MH	Bobbie	14 Dec 76
VK6NSU	Sue	2 Oct 80
VK6OV	Inge	31 Mar 85
VK6QL	Trish	3 Dec 84
VK6QM	Margaret	21 Jun 80
VK6YF	Poppy	3 Jul 78
VK6YL	Gillian	15 Sep 76
*Olive Couch		21 Oct 77
Daphne Hugo		25 Aug 80
●June Greenaway		24 Dec 83
Lynda Frances		13 May 85
*VK6ZLZ	Christine	17 Dec 83
VK7CC	Christine	10 Jun 83
VK7HD	Helene	29 Dec 77
VK7NYL	Laura	2 Feb 84
VK7ZSU	Sue	25 Aug 79
VK9NL	Kirsti	1 Jun 80
DF1LV	Christel	11 Dec 82
DJ1TE	Christa	15 Sep 79
DF2SL	Anny	15 Sep 79
DF3LX	Heidi	12 Mar 83
DK5TT	Margot	1 Nov 81
DJ0EK	Paula	1 Nov 81
FK8FA	Aimee	22 Oct 84
JA1AEQ	Fumi	21 Sep 84
JH1GMZ	Akiyo	6 Feb 85
JI1VLV	Nanako	8 Jul 84
JJ1LQI	Hisako	25 Oct 83
JJ3WWS	Sayoko	1 Sep 82
JA6KYP	Etsuko	14 Jan 85
K1IJV	Jean	23 Mar 81
WA1UVJ	Karla	10 Dec 79
W2GLB/7	Phyllis	23 Jul 76
WB2YBA	Christine	1 Jun 78 (other callsign VK2ASZ)
KA3CEO	Jeanne	19 Jan 84
W3CDQ	Liz	1 Nov 78
WA3HUP	Mary Ann	6 Oct 81
WB3CQN	Ruthanna	30 Mar 81
WB3EFQ	Lois	19 Oct 83
WA4SRD	Edith	17 Oct 79
K5AVX	Charlotte	20 Feb 82
KK5L	Carol	11 May 83
WD5FQX	Darleen	16 Jan 85
K6INK	Jerrie	9 Jun 79
KA6V	Joanie	16 Oct 82
KB6CLL	Mary	22 Oct 84
N6GGR	Maxine	28 Dec 82
WA6OET	Jessie	17 Jan 84 (other callsign VK3BCO)
KA7CRO	Martha	2 Mar 82
KD7RA	Gerry	19 Jan 84
KD7SH	Alice	26 Apl 84

KD7YB	Joan	11 Apl 83
KF7F	Jan	20 Dec 78
KQ7Y	Shirlee	1 Oct 80
N7FXF	Denise	22 Nov 82
KB8RT	Lee	2 Oct 80
KM8E	June	10 Feb 85
WD8MEV	Shirley	1 Feb 84
K9RXK	Ann	22 Aug 83
G3HCQ	Sheila	20 May 81
G4EYL	Ann	28 Mar 81
G4EZI	Diana	19 Dec 78
G4JMT	Rae	8 Mar 84
G4KVR	Cilla	1 Nov 81
G4OUZ	Joy	17 Dec 84
G4VFC	Dee	17 Dec 84
Jeanette Arter		17 Dec 84
GM4LUS	Shirley	20 Dec 80
GM4UXX	Anne	23 May 84
GM6KAY	Kay	17 Dec 84
LA8UW	Karen	20 Feb 84
PA3ADR	Agnes	12 Jun 81
PA0HIL	Hil	12 Jun 81
PY2JY	Inge	23 Jan 84
VE6AUP	Hallie	1 Oct 80
VE7YL	Elizabeth	1 Oct 79
VE7CBK	Bobby	28 Oct 78
VE7CIX	Rae	28 May 78
VE7XYL	Diana	30 Jan 82
YJ8NJW	Junia	6 Feb 85
ZL1ALE	Aola	12 Dec 79
ZL1ALK	Celia	1 Nov 81
ZL1BDZ	Clarrie	18 Mar 77
ZL1BOR	Lesley	11 May 80
ZL1FV	Gail	8 Nov 83
ZL1MY	Shirley	20 Nov 83
ZL1OC	Vicki	11 Sep 77
ZL2ADK	Cathy	30 Oct 82
ZL2AWP	Alma	17 Dec 84
ZL2AZY	Biny	11 Jan 81
ZL2BAO	Jos	1 Nov 81
ZL2BOA	Marilyn	16 Sep 84
ZL2BOD	Jeanne	26 Dec 82
ZL2BOV	Anne	23 Jan 84
ZL2PQ	Lynn	25 Dec 82
ZL2QW	Pauline	4 Nov 83
ZL2QY	Pearl	22 Apl 76
ZL2TZG	Gail	17 Jan 85
ZL2VQ	Carol	30 Oct 83
ZS6GH	Diane	1 Jun 78
ZS6VC	Pat	20 Nov 83

SPOTLIGHT ON SWLing

Robin Harwood, VK7RH
5 Helen Street, Launceston, Tas 7250

There has not been too much to get excited about this past month. Band conditions have been very poor and unpredictable with the occasional blackout severely disrupting communications on HF. One highlight though was the unexpected apprearance of Radio Greenland in mid-April on 13.797 MHz with reduced carrier USB. It was carrying a news programme in a Nordic language — Danish I would presume, as there were actualities from Tel Aviv. I think that the programme material would have originated in Copenhagen as Greenland's population is not that large, although in the atlas Greenland appears large, it really is because of the distortion of land masses around polar regions on the Mercator Projection. You can see it's true size on a globe.

STATIC LEVELS DOWN

Because of the lack of activity on the higher frequencies, I have been listening down in the tropical allocations between 2 and 6 MHz. The static levels have diminished now and I have been observing some interesting Latin American and Asian signals in our local evening hours. Unfortunately as well, there seems to be a corresponding increase in the amount of utility services utilising these frequencies, because of the lack of HF propagation. This has made reception even more difficult. When you appreciate that the majority of broadcasters down there use low to medium power, you do especially find it difficult to positively identify a station, as there are local languages and dialects spoken plus there are several stations sharing the same channel.

Another complication I have encountered is the presence of several international broadcasting stations, such as Radio Beijing and Radio Moscow in these tropical allocations, which are primarily allocated for local domestic coverage. Both stations have been observed in Japanese and Korean. I have even observed Beijing broadcasting in English around 1200 UTC in the 60 and 75 metre allocations. The frequency was not announced at the microphone nor is it mentioned in the schedules. However the 75 metre allocation (3.900-4.050) is used within Europe and Asia but not in the Americas.

SURPRISE!!

And talking of unlisted outlets, I came across Radio Australia on one of their regular 49 metre channels at 0400 UTC. It was quite strong and unusual because Radio Australia doesn't employ the 49 metre allocation in the local daytime. I think that they could have been using Lyndhurst and not the Carnarvon site which normally is on 6.080 MHz. The VOA was in various European languages underneath from their Wofferton (UK) base. I don't think it was a scheduled transmission as there was no acknowledgement at the microphone of the frequency's use. I guess that they were experimenting to see what propagation was like on 49 metres at that time.

UNIDENTIFIABLE

Around mid-winter, it has been usually possible to hear signals coming in from Europe across the Antarctic regions at midday locally. So far this year, I am hearing several carriers yet the modulation appears well down. There is a characteristic flutter, indicative of a polar path present on the carriers. Perhaps by mid-June, I will be able to identify them.

At present, I am hearing stations broadcasting to North, Central and South America around 0200 UTC which corresponds to our local midday. Signals on the 25 and 31 metre bands have been particularly good. Another unusual propagational occurrence has been the presence of several Pacific Island broadcasters on the 41 metre band during the daytime. Noumea has been heard around 0200 UTC on 7.170 as well as Vanuatu on 7.260, which quickly disappears when the Europeans dominate the channel.

There were several live broadcasts of special events during May. First off, we had a description of the May Day Celebrations in Red Square in English and other languages. Then on the 8th May, better known as VE Day, the BBC World Service carried live the Service of Remembrance from Westminster Abbey. Then the next day, the Soviets had a big Military Parade in Red Square and R Moscow had descriptions over their World Service plus a commentary in German. Apparently the USSR regard 9th May as VE Day.

The BBC World Service has been experimenting with a new audio processing system called OPTIMOD. This new system aims to equalise audio output and is not like the compression system they used previously.

Then you could hear the announcer in between phrases drawing in breath, or the sound effects would drown out the dialogue on a sports description or play. The new system appears much better and easier to listen. Now I would only wish Radio Moscow reduce its compression on its modulation. It sounds lifeless and artificial with no depth. The audio is better on their Domestic Feeders on SSB than it is on the normal DSB (AM) signals, particularly on music programmes.

Well, that is all for this month. I hope to work many of you to obtain my 75th Anniversary Award. Next month, I will have a report on the Australian Radio DX Club's "DXPO" that I attended last month. Until next time, the best of 73 and good listening — Robin. **AR**

QSP

TRANSCRIPT OF JOTA TAPE

JOTA information for broadcast on Sunday, 26th May 1985 from Stan Ellis VK2DDL, JOTA Co-ordinator for 1985 for Central Sydney Area of the Scout Association.

The Scout Association is hoping, this year, to see a much greater response from Scouts, Guides and amateurs to Jamboree-On-The-Air. We feel that, in International Youth Year, amateur radio offers a great opportunity for Scouts and Guides around the world to make contact.

The Scout Association has set up groups of JOTA Co-ordinators at Area and District levels to liaise with the WIA, and, in particular, the Institute's JOTA Co-ordinator, John Bunn VK2NDJ.

We ask any amateur who can spare the time, to participate. Although JOTA is still some months off, we would like to see amateurs and Scout Groups, or Districts, meeting to arrange for the siting of JOTA stations and also for preliminary instruction of Scouts and Guides in operating procedures.

A suggestion is that groups of two or more amateurs visit Scout and Guide meetings and demonstrate procedure, as well as giving some details of the history of amateur radio. It has been found in the past that many of those participating in JOTA, when confronted for the first time with a microphone, become tongue-tied, and contacts degenerate into much giggling and incoherent noises. This does not enhance either the Scouts', Guides' or amateurs' appreciation of the event, and can be avoided if some familiarisation with the art of communicating is provided. A very effective way of providing training in procedure is by the use of intercom units or tape recorders. Intercom units, particularly those FM units which operate over the mains, offer a very easy means of demonstration under conditions which closely approximate push-to-talk operation.

Communication is becoming an increasingly important aspect of Scout training. We hope, in the future, to see more and more amateur stations permanently installed at Scout halls. For many Scouts and Guides the first contact they have with amateur radio is at JOTA. The willingness of amateurs to introduce them to their hobby can often result in the awakening of an interest which will continue for many years.

Any amateur willing to assist with JOTA has only to advise John Bunn on 02-772-3437, giving his or her name, address and call sign. This information will be passed on to the Scout Association who will arrange for a District Co-ordinator to make contact and arrange for a meeting where facilities, a suitable station location and any other necessary arrangements may be discussed. **AR**

CONTESTS

Ian Hunt VK5QX
FEDERAL CONTEST MANAGER

P.O. Box 1234, GPO, Adelaide, SA 5001.

CONTEST CALENDAR

JULY

6-7	*Venezuela Phone Contest*
13-14	*International QRPP Contest*
13-14	*IARU Radiosport Championship*
13-14	*West Coast 180 SSB Contest*
13-14	*Colombian DX Contest*
20-21	*The Sunshine State Jack Files Memorial Contest (Rules 'AR' June 1985)*
20-21	*Venezuela CW Contest*
20-22	*CQ WW VHF Contest*
27-29	*County Hunters CW Contest*

AUGUST

10-11	*European CW Contest (Rules this issue)*
17-18	*REMEMBRANCE DAY CONTEST (Rules this issue)*
17-18	*SARTG RTTY Contest*
24-25	*All Asian CW Contest (Rules June 1985)*
24-25	*SARTG RTTY Contest*

SEPTEMBER

14-15	*VK NOVICE CONTEST*
14-15	*European Phone Contest (Rules this issue)*

OCTOBER

5-6	*VK/ZL OCEANIA PHONE CONTEST (Not yet confirmed)*
12-13	*VK/ZL OCEANIA CW CONTEST (Not yet confirmed)*
26-27	*CQ WW DX Phone Contest*

NOVEMBER

23-24	*CQ WW DX CW Contest*

CERTIFICATES

As I write this, action is still in hand to complete the issuing of all the certificates and overcoming the backlog of same. My plans have gone a little astray regarding this matter and I had sincerely believed that I would have had it all cleared by now. So, please be patient for just a little longer. I can assure you that you have not been forgotten.

REMEMBRANCE DAY CONTEST

This is the biggest of our contests for the year. There are quite a few rule changes, many of which have been previously intimated, and I would suggest that you read the rules carefully. Hopefully there are no ambiguities or mistakes in same.

The weighting factors to be applied for the 1985 Contest with respect to each WIA Division are as follows:—

VK1 — 1.08, VK2 — 7.81, VK3 — 5.96, VK4 — 5.83, VK5/8 — 1.31, VK6 — 1.26, VK7 — 1.27.

I would like to thank Ron Henderson VK1RH for his assistance in calculating the figures from the data available from the 1984 contest and providing same to me. I still have some reservations as to the method used in deriving the formula to determine the winning Division and I mentioned this fact in my Annual Report to the Federal Convention. I trust that there will be some continuing discussion on this subject but would not like to mess with the current system until the matter has been more closely studied. It is a much more complicated matter than may appear at first glance.

CONTEST DATES

Following my Annual Report to the Federal Convention and discussion of same by the Federal Council my recommendations regarding the change of dates for the John Moyle Memorial Field Day and the VK Novice Contests were accepted. It is too late now to be able to do anything about the VK Novice Contest date so we will have to wait until 1986 before that can be sorted out. As you can see by the Contest Calendar published above it will still be held this year in September sandwiched in between the Remembrance Day and VK/ZL/Oceania Contests.

The Convention agreed that the date for the Field Day Contest could be moved to as late as the end of March. It may interest you to know that I am in correspondence with the ZL Contest Manager Jock White ZL2GX on this subject. The New Zealand boys would like our Field Days to continue to coincide as has happened on occasion in the past, so I hope that we can come to some suitable arrangement on this.

There seems to be a large amount of material for the Contest Column this month and it is that season of the year when my work as Contest Manager will be hotting up. I also have a very heavy commitment in other areas as well so the column may be a little sparse in the way of editorial comment and news for several issues. However, do not let this deter you from sending letters of comment and suggestion. They are always welcome, the more comment and discussion the better for all concerned.

REMEMBRANCE DAY CONTEST 1985

This contest is held to commemorate those amateurs who died during the Second World War and is designed to encourage friendly participation between all amateurs and to help in the improvement of operating skills of all participants.

This contest is held annually during the weekend nearest the 15th August, the date on which hostilities ceased in the South-west Pacific area.

The contest is preceded by a short opening address by a notable personality which is transmitted on various WIA frequencies during the 15 minutes immediately prior to the commencement time of the contest. As part of this opening ceremony a Roll Call of names of those amateurs who paid the Supreme Sacrifice is read.

A perpetual trophy is awarded annually for competition between Divisions of the Wireless Institute of Australia. It is inscribed with the names of those Australian amateurs who made the Supreme Sacrifice and so perpetuates their memory throughout amateur radio in Australia.

The name of the winning Division each year is also inscribed on the trophy and in addition the winning Division will receive a suitable certificate.

OBJECTS

Amateurs in each VK call area will endeavour to contact other amateurs:

1 In other VK Call Areas, P2 and ZL on bands 1.8 to 30 MHz, (except the 10 MHz, 18 MHz and 24 MHz bands).

2 In any VK Call Area, including their own, P2 and ZL on bands above 52 MHz, and as indicated in Rule 5.

CONTEST PERIOD

0800 UTC 17th August 1985 to 0759 UTC 18th August 1985. All Australian amateur stations are requested, as a mark of respect, to observe 15 minutes silence prior to the commencement of the contest. It is during this period that the Opening Ceremony Broadcast referred to above will take place.

RULES

1 There will be TWO CONTEST CATEGORIES.
(a) HIGH FREQUENCY (HF) ie for operation on bands below the 52 MHz Band.
(b) VERY HIGH FREQUENCY (VHF) ie for operation on bands from 52 MHz and upwards.

2 In each Category there will be THREE SECTIONS.
(a) Transmitting Phone.
(b) Transmitting CW.
(c) Receiving.

Modes applicable to each section are as follows:—
(a) AM, FM, SSB, TV.
(b) CW, RTTY.
(c) Rx A or B.

3 ALL AUSTRALIAN AMATEURS (VK Call sign) may enter the contest whether their stations are fixed, portable or mobile. Members and non-members of the Wireless Institute of Australia are eligible for awards.

4 CROSS MODE OPERATION is permitted. CROSS BAND operation is NOT permitted excepting via a satellite repeater.

5 SCORING CONTACTS.
(a) ALL CONTACTS SCORE **ONE POINT.**
(b) On all bands a station in another call area may be contacted once on each band using each mode. That is, you may work the same station on each band on Phone, CW, RTTY and TV.
(c) On the bands 52 MHz and above, the same station in **any** call area may be worked using any of the modes listed at intervals of not less than THREE HOURS since the previous same band/mode contact. However, the same station may be contacted repeatedly via satellite not more than once by each mode on each orbit.
(d) Acceptable logs for all entries must show a minimum of at least 25 valid contacts.

6 MULTI-OPERATOR STATIONS ARE NOT PERMITTED (except as in Rule 7) although log keepers are allowed. Only the licensed operator is allowed to make a contact under his/her own call sign. Should two or more operators wish to operate any particular station each will be considered as a contestant and must submit a log under the individual call sign which applies to that operator.

7 CLUB STATIONS may be operated by more than one operator but only one operator may operate at any time, ie no multi-transmission. All operators at any club station must sign the declaration.

8 CYPHERS. For a contact to be valid serial numbers must be exchanged between stations making the contact. The serial number will comprise THREE FIGURES commencing at 001 for the first contact and incremented by one for each successive contact. Should the serial number 999 be reached the serial number will revert again to 001.

9 TERRESTRIAL REPEATERS. Contacts via terrestrial repeaters are not permitted for scoring purposes. Contacts may be arranged through a repeater and if successful on another frequency will count for scoring purposes. The practice of operating on repeater frequencies in simplex mode is not permitted.

10 PORTABLE OPERATION. Log scores of operators located outside their allocated call district will be credited to that call area in which the operation takes place, eg VK5XY/2. His score will be added to the VK2 Division scores.

11 ENTRIES. A log of all contacts must be submitted. This should be in the format as shown in the example and must be on one side of the paper only.

A FRONT SHEET must also be included showing the following information in this order:
Category (HF or VHF), Section (Phone, CW, or Receiving), Call sign, Name, Address, Total Score, Page Tally.
Declaration: "I hereby certify that I have operated in accordance with the rules and spirit of the contest."
Signed.....Date.....

Logs are to be forwarded to the Federal Contest Manager, PO Box 1234, GPO Adelaide, SA, 5001. Envelopes are to be endorsed "Remembrance Day Contest" on the FRONT outside. Entries must be forwarded in time to reach the Box Number by 27th September 1985. Any entries received later than this date may be used as Check Logs only.

12 DISQUALIFICATION. See general disqualification rules as printed in detail in the August 1984 issue of 'Amateur Radio'.

Any station observed during the contest as constantly departing from the generally accepted codes of operating ethics may also be disqualified.

AWARDS Certificates will be issued generally on the following basis:— To the top scorers for each call sign class in each Section of each Category. The right of the Federal Contest Manager is reserved to issue additional certificates where considered warranted and to NOT issue certificates where, in the opinion of the contest manager, the entry does not warrant same. Certificates will be issued to top P2 and ZL scorers under the same conditions.

DETERMINATION OF WINNING DIVISION

Scores by stations in VK0 are added to VK7 and VK8 to VK5. Scores by VK9 stations are added to the mainland call area which is geographically nearest. Scores claimed by P2 and ZL stations are not included in the scores of any VK call area.

The formula to be applied to determine the winning WIA Division is as follows:— Total Contacts per Division/Total Licences per Division multiplied by Weighting Factor.

The Weighting Factor is calculated such that should each WIA Division perform equally as well in 1985 as in the past nine years (averaged) the result would be a seven way dead heat. Consequently, the most improved Division will win the trophy and also earn a revised and lower weighting factor for the following year.

RECEIVING SECTION RULES

1 This Section is open to all shortwave listeners in Australia, Papua New Guinea and New Zealand. No active transmitting station may enter this section.

2 CONTEST TIMES and logging of stations on each band are as for transmitting.

3 All LOGS should be set out as per the example. It is not permissable to log a station calling "CQ". The detail shown in the example must be recorded.

4 SCORING will be as per Rule 5 for transmitting with other aspects of that same rule also applying.

5 CLUB STATIONS may enter this section. All operators must sign the declaration.

AWARDS FOR SWLs

Certificates will be awarded to the highest scorer in each call area. Further certificates may be issued at the discretion of the Federal Contest Manager.

DUPE SHEETS

Where stations make a reasonable number of contacts it is most helpful that they use some form of checking system to ensure that they do not have invalid duplicate contacts. A form of sheet which provides a convenient method of making such checks for each band was described in "Amateur Radio", December 1984, page 54. I would suggest that you should use such sheets. Whilst it is not mandatory that you do so, it would be of assistance to the contest manager if you forward a copy of same together with your log.

COMMENT ON RULE CHANGES

You will note that there are a number of changes again made to the rules of the Remembrance Day Contest this year. These may be summarised as follows:—

The splitting of the contest into two Categories HF and VHF.
All contacts to score ONE point only.
Repeat contacts on VHF each 3 hours.
Dupe sheets are NOT mandatory.
Operation of more than one call sign is legitimate. Certificates awarded at the contest manager's discretion.

Before you attempt to query these changes I would submit for your consideration some additional information:

There has for some time been some disagreement as to the point that city operators have an advantage over country operators where VHF operation is concerned. Making two Categories and separating such operation should help solve that problem. It is a fact of life that one can obtain a greater number of VHF contacts by either living within an area of high population density or up on a mountain with great line-of-sight paths. I might also add that in some respects country operators have some advantage with less QRM from local stations, lower general noise levels and often more space for antennas, etc.

Under the rules for this contest any operator may enter in both the HF and VHF Categories, however it becomes obvious that he would have to submit two distinctly separate logs. The same would apply to the submission of logs for both Phone and CW operation.

CW and Phone comprise totally separate sections of the contest, however any operator may utilise both modes if he so desires. It seems to be a matter of pride for CW operators to state that they can get through more easily and faster than phone operators when the going is rough. The more important point for this contest is that by providing additional points for one mode over another the whole idea of the special formulas devised to make the competition between WIA Divisions more equal is thrown off balance by such bias.

The change to 6 hours between repeat contacts on VHF last year was excessive and produced a flood of complaints. The choice of the figure of 3 hours is attempted as a compromise. It may be that further change might be made on the basis of more experience with a VHF only category.

As stated above copies of dupe sheets would be helpful, however until more operators properly understand how to use same I am loath to make them mandatory. Some of the examples provided with logs for the contest last year would certainly bear out my point here.

If an operator has more than one call sign legally issued I see no reason why he cannot use them in any manner he wishes as long as he is abiding by the contest rules and licensing regulations. It would not normally provide him with any extra advantage to operate both call signs consecutively and can even add to the fun of the contest. This approach also allows a club call sign to be aired and encourages any such additional operation in the contest.

The matter of issuing certificates can become a problem. Under the previous rules it may surprise you to know that in excess of 96 certificates would be issued against the annual Remembrance Day Contest results. In many cases these certificates were issued to operators who, whilst they did comply with the rules, made in fact very few contacts at all. In some cases, full-call operators, who made hundreds of contacts less than Novice operators in the same call area, became eligible for a certificate just because they made a handful of contacts on phone and maybe one or two on CW and thus became the only entrant for their call area in the 'Open' Section. In another instance some limited-call holders made in the order of 10 contacts on 2 metre FM and then made just one or two RTTY contacts with their friend just down the road. Such an entry qualified for a certificate as the ONLY limited-call holder in the State with an entry in the Open Section.

At the recent Federal Convention I recommended in my annual report that the Contest Manager should accept discretion in the matter of issuing certificates. The Federal Council saw the wisdom of this approach and agreed. The guidelines for the Remembrance Day Contest do however suggest that where possible certificates be issued to holders of each class of call sign. This suggestion would be followed at the same time as consideration under the more general terms of reference for the Federal Contest Manager. The increase of the minimum number of contacts for a valid log from the previous requirement of 10 to the currently required 25 contacts is an effort to assist in overcoming the problem. Let us face the fact that any reasonably competent operator should be able to make at least 25 contacts in not much more than an hours operation and in most cases even less than one hour.

Generally speaking I would wish to pursue a policy which would not provide contestants in any contests with some kind of an advantage due to the fact that they manipulated their entry to fall into some unusual kind of category which brought them the right for an award with very little expenditure of effort as against those other operators who try hard in contests and operate in a fair manner.

In any case, I do hope that you will enjoy the Remembrance Day Contest this year and that you will provide your support for this, our major event for the year, as well as doing the right thing and being in there trying to help your WIA Division to gain the coveted trophy. I will look forward to exchanging a serial number with you.

EXAMPLE FRONT SHEET

REMEMBRANCE DAY CONTEST 1985

Category: HF **Section:** (A) Transmitting Phone
Callsign: VK1XXX **Name:** Joe Brown
Address: P.O. Box 123 Farm Orchard, ACT. 2611
Total Score: 1498 points

Page Tally	10 Sheets	1498 Points
	Page	Score
	1	40
	2	39
	3	40
	—	
	—	
	Pages 10	Total 1498

Declaration: I hereby certify that I have operated in accordance with the rules and spirit of the contest.
Signed: J. Brown **Date:** 20-8-85

JOHN MOYLE MEMORIAL FIELD DAY CONTEST 1985 — RESULTS

This appears to have been a success this year particularly taking into account the changes made to the rules to try and provide added interest. Even with the fairly short notice quite a number of stations seemed to come up with sources of 'Natural' power. I think perhaps the one to really 'take the cake' was the operator who set a magneto type generator together with a hand drill on a piece of board and turned the unit by hand to power his IC202 Transceiver. Amateurs seem constantly to show their ingenuity. I operated in the 6 Hour Division of the contest and I asked many stations about their feelings on date changes to same. Almost without exception

EXAMPLE TX LOG:

REMEMBRANCE DAY CONTEST 1985

Callsign: VK1XXX **Category:** HF
Section: (A) Transmitting Phone

Date/Time (UTC)	Band (MHz)	Mode	Call	No. Sent	No. Recvd	Pts.
17-8-85						
0800	14	SSB	VK2QQ	001	002	1
0802			6LL	002	001	1
0805			5ANW	003	011	1
0807	"	"	ZL2AGQ	004	003	1
0809			VK4XX	005	007	1
Page 1 of 10						Page Total 40

EXAMPLE RX LOG

REMEMBRANCE DAY CONTEST 1985

Name/SWL No: L30371 **Category:** HF **Section:** (C) Receiving Phone

Date/Time (UTC)	Band (MHz)	Mode	Stn. Calling	Stn. Called	No. Sent	No. Rcvd	Pts
17-8-85							
0800	14	SSB	VK1XXX	VK2QQ	001	002	1
0802			1XXX	6LL	002	001	1
0805	"	"	5ANW	1XXX	011	003	1
0807			ZL2AGQ	1XXX	003	004	1
0809			VK7AL	2PS	007	010	1
Page 1 of 7							Page Total 40

Jill VK6YL, on Penguin Island during the John Moyle Memorial Field Day, used Wind Turbine Power.

all those asked indicated that they would favour such a change as was mooted. This matter was discussed at the recent Federal Convention and it was agreed that the contest could be run as late as toward the end of March. As I have been pointing out this would definitely improve the situation as far as bush fire dangers are concerned and also possibly improve matters for the operators in the north of the country by being further away from the middle of the great wet season.

The introduction of the incentive type multipliers for VHF operation seems to have been satisfactory. Rather than very little VHF operation, as in the past, there was quite a lot carried out on a fair number of bands. VK6KZ for example operated on 6 HF bands (1.8, 3.5, 7, 14, 21, 28 MHz) and 7 VHF/UHF bands. (52, 144, 432, 576, 1296, 2304 and 3456 MHz). This was certainly an excellent effort. It might be said that this contest became too VHF orientated however something different had to be tried. As a result of this year's contest it would seem to be a wise move to re-introduce a VHF ONLY Section. I can assure you that even this Contest Manager can learn by his mistakes. Experience is a good teacher.

Some comments from logs:—

'I think your change of rules rather good as it spreads the scoring possibilities, although I will need to revamp my VHF/UHF aerials to be competitive.' — VK3BAF.

'Congratulations on the revamping the rules for the John Moyle . . . the multiplier rule of map reference for VHF could be changed to make it necessary to provide information only on stations worked over 50 kilometres as all contacts are obviously eligible for at least the multiplier of 2.' — VK2YUP/PEP. (A valid point — 5QX.)

'I look forward to the next John Moyle Contest as it seems to be the only contest that I have noticed that is friendly and that stations are operated in a gentlemanly manner, unlike the RD Contest where a lot of stations seem to reply to a call then proceed to take over the frequency from low powered stations.' — VK2YUP/PEP.

'Firstly I like the idea of the Section Letter after the serial number. It certainly aided me whilst adding the scores. I question the RS number. It was quite obvious we were not getting dinkum signal and readability numbers . . . We have entered the John Moyle Field Day Contest since 1979 and have a lot of fun . . .' — VK4YX Log Co-ordinator for Southern Downs Ad-Hoc JMFD Contest Group.

'So again, congratulations on an excellent presentation and development of the rules. May your efforts at revising the other National contests be as successful . . . Also I liked the new classification of 'Home Station Emergency Powered'. — VK2BQS. (Jim enclosed a polaroid photo of his emergency powered station however the photo is not good enough for reproduction — 5QX.)

'It was obvious from the small number of novices contacted by my station that there needs to be some thought put into the rules for novice participants. Maybe an HF ONLY section. We need to encourage the novices to enter as many facets of 'AR' as possible and contesting is one. Especially the John Moyle, as it is meant to familiarise amateurs in 'field' operation . . . look forward to next years event.' — VK1PJ.

'Thanks for another fine contest, unfortunately this year I recently arrived on Christmas Island and events prevented me from activating a portable station . . . Christmas Island has 5 amateurs, two being fairly active . . . We may try and activate the Club Station VK9XI for the RD Contest so keep an ear out for VK9X.' — VK9XZ (VK6CZ). (How about the Club in next year's JMMFD? — 5QX.)

'It was an enjoyable contest and I would like to thank the organisers once again.' — VK5DL.

'You obviously put a great deal of thought into the rules but some thoughts may be of value to you . . . I do not believe there is a place for VHF in the NFD. The Ross Hull Contest caters for the VHF devotees. The present system allows near city operation on VHF to crank up huge scores in a fashion which has no rational significance.' — VK2ARZ. (Max made quite a few rather pertinent comments apart from those quoted here. — 5QX.)

'Next time I see the need for portable HF antennae rather than the mobile whip if one is to be competitive.' — VK6KZ.

'Every Tuesday morning at 10 am at the Moorabbin and District Radio Club venue there is a meeting of the old retired members. About 40 to 50 turn up and of them there is about 10 who used to operate VK3APC during past field days. We have now left it to the young chaps to carry on while we take it easy hi . . . If you study the word Portable in the dictionary you will find the definition does not really suit our situation. When we had VK3APC in the field days we needed a fleet of cars to carry all the gear.' — VK3JI.

'The 6 and 24 hour sections should be retained as it allows people who can't devote all the time to the contest to participate at times to suit them.; — VK5AIM.

'The recent rule changes made the contest more enjoyable to take part in . . . The monster vertical for 160m collapsed when one of the guys broke . . . A hearty slap on the back for an innovative change in the Field Day rules! The introduction of solar power to the contest was a real challenge . . . the generating equipment finally used was only a small portion of that actually experimented with (others included turnstile, exercise bike and chemical batteries using lemons, copper and zinc sheet!) — VK3CGH President North-Eastern Radio Group. VK3CNE. (I believe the NERG will be providing a separate article for Amateur Radio on their Field Day operations. — 5QX.)

'This was my first contest in 6 years of operating. I thoroughly enjoyed it and hope to catch you again next year.' — VK6KHC.

'Ian, I wonder if you are the same Ian Hunt that used to be a member of the VK3 SWL Group many years ago?' — VK3RN. (Yes Ron. And I wrote the SWL column for 'AR' for some time too.)

'Once again it was a good fun weekend . . . Late February was better than early February . . . Probably late March would be better still . . . VHF/UHF Multipliers: We feel the whole contest this year was slanted to operators to use these bands, and the multipliers (plus low HF DX points) gave no incentive to novice operators to go portable.' — Eastern and Mountain District Radio Club.

'The distance multiplier for VHF is a good idea to get stations active but how does someone in a low activity area (ie Mt Newman or some remote area) score highly in VHF or UHF . . . My father's name is John Moyle.' — VK3GK.

'A majority of our operators were novices . . . no stations were heard on 10m . . . This Division runs the station in Weston Park which is located on the shores of Lake Burley Griffin . . . being in the park amongst the public has its advantages as far as publicity for amateur radio.' — VK1KAL VK1 Divisional President for VK1WI/P.

'Next year we go wind power — the points are worth the effort . . . band conditions couldn't be worse . . . It helps to get 50 km from the city . . . we will compete again next year.' — VK6XZ.

Included amongst correspondence about the Field Day Contest was a multi-page letter from David VK4NLV representing the Radio Amateurs' Group. He also supplied copious details regarding past suggestions concerning Field Day rules. All of this material will be considered and discussed where necessary with a view to further 'fine tuning' and improvement of the contest rules in the future.

One final comment to critics of the fact that not much advance notice was given regarding the natural power rule for the contest. Such an innovation had to be brought into the contest sooner or later so always the first introduction of new ideas may seem to be without enough advance notice. As early as the November 1984 issue, this column canvassed the possibility of inclusion of such a rule as well as pointing out that it was already Federal Policy to pursue such an approach, so it should not really have come as too great a surprise.

Congratulations to each of the Section winners in the contest. I will have your certificates on the way to you as soon as possible. I would like to thank all those who entered the contest and for your supporting and encouraging comments.

On a lighter note, it was interesting to see that a number of operators are certainly well aware which state they live in. In the front summary sheet where it was necessary for them to show the 'Division' of the contest they were entered in (namely 6 or 24 hour) quite a few instead showed 'VK2' or 'Victorian Division' etc. (Hi). Perhaps this indicates a mark of really strong state loyalties.

A total of 71 logs, including 3 check logs were received for the Field Day Contest this year.

6 HOUR DIVISION

Section 'A'
Single Op Phone

Call	Contacts	Score
4ZML	58	2268
3BAF	124	2066
5QX	145	1611
3ADW	63	858
6KZ	40	850
5AIM	32	389
2OD	19	253

Section 'B'
Single Op CW

5DL	25	566
2BQS	53	539
2JM	17	474

Section 'C'
Single Op Open

2EL	88	1410
2ARZ/M	56	827
3SP	51	775

Section 'D'
Multi-Op Phone

3CMZ	114	3462
4ANK	184	1850
1PJ	169	1635
5ARC	88	1138
6YG	44	712
4WIG	36	516

Section 'E'

No entries

Section 'F'
Multi-Op Open

3WIA	116	3402
2BOR	75	1607
4WIN	181	1296

Section 'G'
Home Emergency Power

3AKJ	62	879

Section 'H'
Home Mains Power

2DXV	39	323
7NIM	24	213
3JI	12	132
7AL	12	120

Section 'I'
SWL

L30371	21	115

24 HOUR DIVISION

Section 'A'
Single Op Phone

5BJA	291	3386
6KHC	87	3360
4AG	55	1370
4ADB	43	930
4AHO	43	925
4YAF	18	540
1LF	18	392
4KAC	15	360
4ZDV	19	54

Section 'B'

No entries

Section 'C'

No entries

Section 'D'
Multi-op Phone

3CNE	630	23632
3ANR	517	12398
4WIZ	473	9256
6YL	163	4783
1WI	172	2601
4WIT	168	1667
1KBW	23	690
4WIM	34	492

Section 'E'

No entries

Section 'F'
Multi-op Open

3ATM	1123	27238
3ER	1079	17753
2WG	522	16500
3APC	1072	15102
3BML	728	13683
1ACA	221	4142
5LZ	287	4079
6YS	275	3198
2FFG	285	2453
6TJ	98	2337
5AT	158	2145
5BPA	83	1972
4HM	70	847

Section 'G'
Home Emergency Power

2YLP/PEP	270	5782
4AOE	60	725

Section 'H'
Home Mains Power

3ZI	56	549
3DNC	81	424
5AGX	35	375
3RN	50	331
3XF	25	170
9XZ	36	127
7RY	3	50

Section 'I'
SWL

John Ramsay	64	568

Check logs were received from VK4APZ, VK4BIL and VK5BG. All entrants in this contest must be congratulated for the general high standard of logs submitted. In most respects they were according to the rules and were tidy and well laid out almost without exception. I trust that this standard can be maintained for future contests.

AUSTRALIAN CONTEST CHAMPION 1984 — VK5AGX

With the publication of the results of the VK/ZL Contest I can now provide the results of the Contest Championship Competition for 1984. Congratulations are due to Vic Noble VK5AGX. He has been a consistent entrant in all the Australian contests for the year and his persistence has paid off. A highly honourable mention must go to the runner-up VK5NOD. It can probably be easily seen that if one is to have any chance at gaining the trophy you must enter in all four of the contests concerned as well as take part in both the phone and CW sections. The results below list only the scorers in the four contests who have entered at least two or more.

Observant readers may have noticed that the caption under the photograph depicting the previous Contest Championship winner VK3XQ being presented with the trophy as published in the May issue of Amateur Radio stated that he was the winner for 1984. This was not correct and the caption should have read 1983.

CALLSIGN	CONTEST and TROPHY POINTS					
	JMMFD	Novice	VK/ Phone	ZL CW	RD	Total
5AGX	6	19	3	10	—	38
5NOD	9	20	5	—	—	34
5QX	4	—	8	7	10	29
2BQS	9	10	8	—	—	27
1LF	6	10	8	—	—	24
2PS	—	8	7	5	—	20
5FF	—	10	4	—	5	19
5BW	9	—	9	-	—	18
3ADW	7	—	—	—	10	17
3AUQ	10	-	6	—	—	16
4XA	—		-	10	2	12
4AIX	8	-	—	—	3	11
2HT	7	—	—	—	3	10

EUROPEAN DX-CONTEST

1. **Contest-periods:** 1985: 10/11 August
   1985: 14/15 September
   1985: 9/10 November
   0000 UTC Saturday to 2400 UTC Sunday
2. **Bands:** 3.5 — 7 — 14 — 21 — 28 MHz.
3. **Classifications:** Single Operator — all band; Multi Operator — Single transmitter; Multi operator/ Single-transmitter-stations are only allowed to change band one time within a period of 15 minutes. A quick band-change and return for working new multipliers is allowed.
4. **Rest period:** Only 36 hours of operation out of the 48 hours are permitted for single-operator-stations. The 12 hours of non operation may be taken in one, but no more than three periods at any time during the contest and have to be marked in the log.
5. **Exchange:** A contest QSO can only be established between a non-European and a European Station. Exchange the usual five or six digit serial number RST/RS report plus a progressive QSO number starting with 001. W/K-stations in addition give their state (e.g. 599011 MA).
6. **Points:** Each QSO counts 1 point. A station may be worked once per band. Each confirmed QTC — given or received — counts 1 point (see below).
7. **Multipliers:** The multiplier for non-European stations is determined by the number of European countries worked on each band. Europeans will use the last ARRL countries list. In addition each call area in the following countries will be considered as a multiplier: JA, PY, VE, VO, VK, ZL, ZS, UA90 (see special regulations for RTTY Fig. 13). Each W/K-state will be considered a multiplier, but not W/K call areas.
   The multiplier on 3.5 MHz may be multiplied by four
   The multiplier on 7 MHz may be multiplied by three
   The multiplier on 14/21/28 MHz may be multiplied by two
8. **Scoring:** The final score is the total QSO points plus QTC points multiplied by the sum total multipliers from all bands.
9. **QTC-Traffic:** Additional point credit can be realised by making use of the QTC traffic feature. A QTC is a report of a confirmed QSO that has taken place earlier in the contest and later send back to a European Station. It can only be sent from a non-European station to a European station. The general idea being that after a number of European stations have been worked, a list of these stations can be reported back during a QSO with another station. An additional 1 point credit can be claimed for each station reported (note special regulation for RTTY see 13).
   a) A QTC contains the time, call and QSO number of the station being reported ie: 1300/DA 1AA/134. This means that at 1300 GMT you worked DA 1AA and received number 134.
   b) A QSO can be reported only once and not back to the originating station.
   c) Only a maximum of 10 QTCs to a station is permitted. You may work the same station several times to complete this quota. Only the original contact, however, has QSO point value.
   d) Keep a uniform list of QTCs sent. QTC 3/7 indicates that this is the 3rd series of QTCs sent and that 7 QSOs are reported.

   Europeans may keep the list of the received QTCs on a separate sheet if they clearly indicate the station who sent the QTCs.
10. **Contest Awards:** Certificates to highest scorer in each classification in each country, reasonable score provided. Continental leaders will be honored. Certificates will also be given to stations with at least half the score of the continental leader.
11. **Disqualification:** Violation of the rules of this contest or unsportsman like conduct, or taking credit for excessive duplicate contacts will be deemed sufficient cause for disqualification. The decisions of the Contest-Commitee are final.
12. **Logs:** It is suggested to use the log sheets of the DARC or equivalent. Send large size S.A.S.E. to get the wanted number of log-and summary-sheets (40 QSOs or QTCs per sheet). Use a separate sheet for each band. All entrants are required to submit cross-check (dupe) sheets for each band on which they worked more than 200 QSOs. For each duplicate contact, that is removed from a log by the checker, a penalty of three additional contacts will be crossed out.
13. **Special regulations for RTTY:** In the RTTY-Section of the EUROPEAN DX-CONTEST also contacts between all continents and also one's own continent are permitted. Multipliers will be counted according to the EUROPEAN- and ARRL-countries list. QSO as well as QTC-traffic with one's own country (district) is not allowed. SWLs apply to the rules accordingly.
14. **Deadline:** CW: 15th September; Phone: 15th October; RTTY: 15th December.

European Country List: C31 — CT1 — CT2 — DL — EA — EA6 — EI — F — FC — G — GD — GI — GJ — GM — GM Shetland — GU — GW — HA — HB — HB0 — HV — I — IS — IT — JW Bear — JW Spitsbergen — JX — LA — LX — LZ — OE — OH — OH0 — OJ0 — OK — ON — OY — OZ — PA — SM — SP — SV — SV5 Rhodes — SV9 Crete — SV Athos — T77/M1 — TA European part — TF — UA1346 — UA2 — UA Franz-Josefs-Land — UB — UC — UN/UK1N — UO — UP — UQ — UR — Y22-99/DM — YO — YU — ZA — ZB2 — 1A0 — 3A — 4U1 Geneva — 4U1 Vienna — 9H1.

AR

COLOMBIAN INDEPENDENCE CONTEST 1985

CONTEST PERIOD: Saturday 13 July 0000 UTC to Sunday 14 July 2359 UTC.
MODES: CW and phone.
CATEGORIES: A Single operator, single band, CW only, phone only. B Single operator, multi-band, CW only, phone only. C Multioperator, single transmitter, multiband, CW only, phone only. D Multioperator, multitransmitter, multiband, CW only, phone only. *(Note: There is only one single-band category, ie: Single band operators using 14 MHz compete only in this band).*

BANDS: 1.8, 3.5, 7.0, 14.0, 21.0 and 28.0 MHz.

CONTEST CALL: Phone: CQ HK Contest.
CW: CQ HK Test.

EXCHANGE: Phone: Signal report plus three numbers starting with 001. Example: 59001. CW: RST plus three numbers beginning with 001. Example: 599001.

SCORING: Non-HK stations
With HK stations.....10 points
With non-HK stations outside own country 5 points
With stations of one's own country..... 1 point

MULTIPLIERS: The combination of different countries worked on each band plus different HK districts worked on each band.

FINAL SCORE: Total QSO points times multipliers per band.

LOGS SHOULD INCLUDE THE FOLLOWING:
Time in UTC; station worked; report sent; report received; multiplier; QSO points.
Separate sheets should be used for each band.
Multipliers should be indicated only the first time they are worked on each band.
A summary sheet should be included with the submission, indicating point computation, category of participation, name and address of operator, list of operators in case of multi-operator stations, standard contest declaration. Submissions not including summary sheet will be counted as check logs.

PRIZES: Every station which shows a minimum of 50 QSOs, at least 10 of which are HK stations for phone entries, or five for CW entries, will receive a certificate of participation. Overall winners receive plaques or cups.

OTHER CONDITIONS OF ENTRY: Each participant must communiate with at least 10 HK stations on phone, or five HK stations on CW in order to have the entry accepted by the contest committee.
Each entrant must submit proof of a total of 50 QSOs, at least 10 of them with HKs if one phone or five HKs if on CW, in order to be eligible for any prizes.
Only one contact per band with the same station is valid.
Cross-band or cross-mode contacts are not valid.

DISQUALIFICATION: Violation of amateur radio regulations in the country of the participant, or of the contest rules, lack of ethics, phantom QSOs, duplicates in excess of 2% of the total number of contacts, may be sufficient to merit disqualifications. In any such case, the decision of the LCRA Executive Committee on contests will be final and not subject to appeal.

MAILING INSTRUCTIONS: Logs should be mailed no later than 30 August 1985. Logs received after 30 Dec 1985, will not be eligible for consideration, though they may be used as check-logs.

MAIL: All contest logs or other correspondence to:
LCRA
C/o Direction de Concursos y Diplomas
Apartado Aereo 584
Bogota-Colombia
Sur America.

1985 SEANET WORLD-WIDE DX CONTEST

CW Contest: 0000UTC Saturday 20 July to 2359UTC Sunday 21 July 1985.
PHONE Contest: 0000UTC Saturday 17 August to 2359UTC Sunday 18 August 1985.

BANDS 10 thru 160 metres.

ENTRY CLASSIFICATION
Single Band — Single Operator
Multi-Band — Single Operator
Multi-Band — Multi-Operators

POWER OUTPUT As stipulated in the regulations governing the licence of the operator.

CONTEST CALL "CQ SEA" for CW Contest, "CQ SEATEST" for Phone Contest.

REPORTING RS/RST report plus serial numbers starting with 001 and increased by one for each successive contact. See also rule 4d.

LIST OF SEANET AREA PREFIXES A35, A51, AP, BV, BY, C21, DU, FK8, FR, FW8, HL,HS,H44 JA (etc), JD1, KA, KC6, KH2-3-4-5-6-7-8-9-0, KX6, P29 S2, S79, T2, T3's, VK (all), VQ9, V85, VS6, VU2, VU7, XU, XV5, XW8, XX9, XZ2, YB, YJ8, ZK, ZL (all), 3B6-7-8-9, 3D2, 4S7, 5W1, 8Q7, 9M2-6-8, 9N1, 9V1, and 1Z9.

SCORING RULES

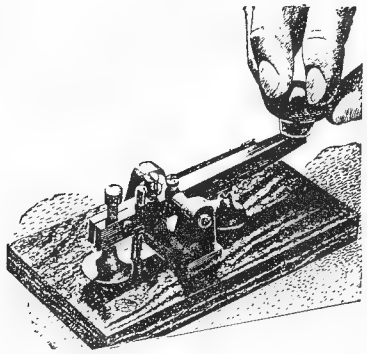
1 *For stations OUTSIDE SEANET AREA*
- *a Contacts with stations WITHIN SEANET AREA of the following "bonus" prefixes: DU, HS, YB, 9M2-6-8, 9V1 & V85*
  20 points on 160 metres
  10 points on 40 and 80 metres
  4 points on 10, 15, and 20 metres
- *b Contacts with **other** stations WITHIN SEANET AREA NOT listed above in 1a:*
  10 points on 160 metres
  5 points on 40 and 80 metres
  2 points on 10, 15, and 20 metres
- *c Contacts between stations OUTSIDE SEANET AREA will not be counted.*
- *d Multipliers will be 3 points for each SEANET country worked.*

2 For stations **in** the SEANET AREAS
- *a Contacts with stations OUTSIDE SEANET AREAS:*
  10 points on 160 metres
  5 points on 40 and 80 metres
  2 points on 10, 15, 20 metres
- *b Contacts between stations WITHIN SEANET AREAS:*
  6 points on 160 metres
  3 points on 40 and 80 metres
  1 point on 10, 15, 20 metres
- *c Contacts between stations in own country will not be counted.*
- *d Multipliers —*
  Contacts with countries WITHIN SEANET AREA count 2 points for each country worked,
  Contacts with countries OUTSIDE SEANET AREA count 3 points for each country worked.

3 The final score will be the sum of the POINTS multiplied by the SUM of COUNTRY MULTIPLIERS.

4 Restrictions —
- *a Contacts on cross-modes or cross-bands or mixed CW/PHONE logs will be disqualified.*
- *b Operators are not allowed to transmit two or more signals at the same time.*
- *c Only one contact per band with the same station will be counted.*
- *d Contest numbers should begin with 001 on each different band.*

Certificate No. . . . . .



THE WIRELESS INSTITUTE OF AUSTRALIA

CW CONTEST

This Annual Contest was inaugurated to celebrate the 75th Anniversary of
THE WIRELESS INSTITUTE OF AUSTRALIA
— the oldest Radio Society in the world — formed at a meeting at the Hotel Australia in Sydney on March 11th, 1910. It was felt that with the advent of modern equipment and methods that there was a need to further the ability of morse knowledge, practice and skill.

AWARDED TO

. . . . . .

FOR OUTSTANDING PARTICIPATION

. . . /. . . /. . .
DATE

. . . . . .
PRESIDENT

e All entries in violation of the contest rules, incorrect statements in the submitted reports, taking points from duplicate contacts, and practices against the brotherhood of amateur radio will be disqualified.

f The decision of the SEANET contest committee will be final.

ENTRIES, LOGS, AND SUMMARY SHEETS All entries must be in the form of logs and summary sheets (list each country worked; number of contacts with that country, per band; and full, clear listing of your mathematical calculations of scoring). ALL TIME must be in UTC. Entries must be received by the Contest Manager not later than 20 October 1985. Results will be announced at the SEANET Convention, with individual winners notified by mail in advance. If you require the results to be sent to you, please include a self-addressed envelope and two IRCs, together with your entry. Please retain a copy of all material sent as these logs will not be returned.

CONTEST PRIZES AND AWARDS The Highest scoring entry, in each classification, three for CW and three for PHONE, will each receive a very unique trophy.

In addition, the **highest single operator entry**, either as single band or multi-band, one for CW and one PHONE, will receive a prize consisting of the following:

***Free** convention registration (includes two dinners);*

***Free** convention accommodation at Cebu Plaza Hotel (three days, two nights).*

If you win but are unable to attend the convention, your trophy and a substitute prize, a copy of the Call book, Foreign Edition, latest copy available, will be mailed to you.

MAILING ADDRESS FOR ENTRIES CEBU Amateur Radio League, PO Box 304, Cebu City, Philippines 6401. Att: Seanet Contest.

CW 75 ANNIVERSARY CW CONTEST RESULTS

The contest was held on the weekend of the 75th Anniversary of the WIA, and it was unfortunate that it clashed with BERU. However NOT to be held on the actual anniversary would have lost the meaning for the contest.

From remarks sent with entries, it would seem that everyone enjoyed the contest and many hope it will continue as an annual event.

Logs were of a high standard with 95 percent being correctly scored. Thank you for participating and for your comments.

Wally Watkins VK2DEW
CW Contest Organiser.

CALL	SCORE	160	80	40	20	15	2	C'TACTS
VK2PA*	16088	54	11400	2074	2560			247
VK75A	13970		1080	10488	1988	414		222
VI3AUQ	9943	105	1260	7626	798	154		93
VK8HA*	7616				7616			119
VK5ARC	5825	75	1026	1200	2484	1040		193
VK3JI	4446	6	1140	858	2412	30		146
VK7RO	3521		324	3036	160	1		99
VK3CM	3160		1134	1428	594	4		128
VK5GZ	2924		2337	260	135	192		88
VK2II	2902		1716	864	322			135
VI3KS*	2736			2736				57
VK2PS	2664		90	32	2542			76
VK4YG	2419		1848	220	351			93
VK6ABL	1908		936	342	630			100
VI3XB*	1776		1776					37
VK4VAT*	1749		1539			210		72
VK4RF	1732		24	392	1340			100
VK4BSQ	1710		672	408	630			107
VK4AIX	1512		414	70	228	800		81
VK6RU	1509			594	915			115
VK4NGF*	1485		1485					55
VK3VF	1457		810	372	275			86
VK7DQ	1430		420	800	210			81
VK2SU	1423		987	420	16			81
VK6AFW	1394		480	210	704			79
VK2EJW	1343		315	560	468			92
VK3BGH	1330		810	396	112	12		80
VK4XY	1227		861	204	162			76
VK4NUN	1092		1092					52
VK7KR	1006		486	168	352			80
VK4AGL	961		360	348	252	1		78
VK6ED	850		396	18	435	1		55
VK3XF	730		150	468	112			50
VK3CGE	649		441	204	4			40
VK5ZM	619		576	18	25			32
VK5DL	581	36	420	80	45			43
VK3RJ*	525					525		25
VK2VEM	420		420					28
VK3ABR	294		54	216	24			30
VK2BRC	285		285					19
VK2AZR	234		3	230	1			25
VK7RY	168	3	144		21			20
VK4XW	130			128	2			18
VI3DOV	100		3	16	81			14
VK4APZ	24		12	8	4			8
VK2DEW	17				16		1	5
ZL1AIZ*	570		162	192	216			49
JM1LRQ*	360				360			36
ZL1AMM	194		18		176			25
OH7YF	98				98			14
JH7XGN	70				60	10		15
JR6LJO*	27		27					3
JA1AAT	20				16	4		6
JO1QZI	20				20			5
JM1WZP*	15					15		5

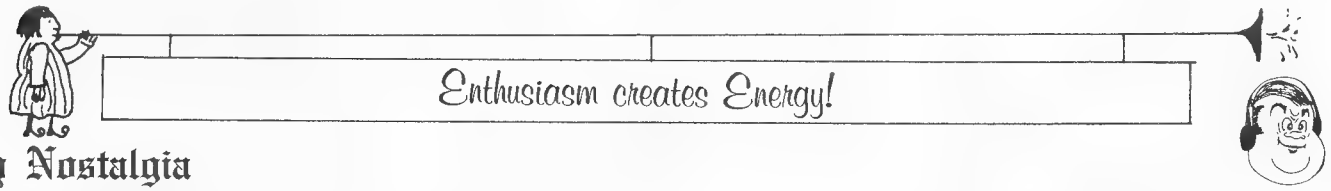
*denotes section winner

Of interest:

VK75A - op VK3AE

VK5ARC - op VK5ADY

VK3CGE - QRP - 1 watt



75th Nostalgia

SHORT WAVER

In this 75th Anniversary Year we have had historical stories from or about amateurs in the by-gone era. This article is about a world-wide known, Australian SWL. The article was contributed by Charlie Nelson VK3WC, with original material from The Australian Radio World, Vol 13, No 1, 15th June 1948. The Radio World issued a SW League Badge. Charlie still has his badge numbered RW98DX.

"No listener is better known in this world than BERS195, otherwise Eric Trebilcock of Wynyard, Tasmania. Eric prefers listening to transmitting, ample proof of which liking is the fact that he got his ham licence just prior to September 1939 and hasn't bothered to renew it. Maybe a surfeit of daily operating in Civil Air work is more than enough, but for relaxation BERS195 turns to 28mc/s CW listening.

"For this work he has always preferred a TRF receiver, and the one made for him previously fell into Japanese hands when Eric found it necessary to leave Rabaul in a hurry. Now a new TRF rx is on the job, using a VR65 RF stage, 954 regen detector and 647G headphone audio stage. Butterfly condensers tune RF and detector stages with coverage of the 50 and 28mc/s bands by miniature plug-in coils. Such a receiver is a joy to handle and Eric says of it — relative to 28mc/s — 'it is the goods. I scored in the recent BERU contest with ZL, VK4, VK5, VK6, VE6, VE7, ZS5, ZS6, ZS1, ZS2, ZE, MI3, VQ4, G, AP and V4. Many of the Gs etc, were RST 599. Last Sunday (25/4/48) I heard G, I, ON, F, PA and VK2EO as well as many VK6 phones at S9 plus.' There isn't a thing wrong with using a smoothly operating TRF for receiver work.

"If sufficient readers are interested, a description of the receiver in use at BERS195 may be forthcoming."

Eric still retains his BERS number today and also has the VK L30042 number and has been a stalwart of the WIA for many years having been made a Life Member in recognition of his work. Together with his late wife Gene, Eric manned the VK3 QSL Inwards Bureau for many years and has been a regular supporter of How's DX, for the current columnist, with his SWL reports.

Eric is shortly to embark on a new direction in his life which may leave him a little short of time for SWLing, but one may be sure that if there is a spare minute, Eric will be listening.

CLUB CORNER

DEVIL NEWS FROM THE NW BRANCH

The monthly meeting of the NW Branch, with fifteen in attendance, was held at the Penguin High School with Ross VK7WP, being in the chair due to Tony VK7AX, holidaying in Cairns. (just as he was receiving some good SSTV from VK3 on 7.130 MHz). All accepted the comprehensive Treasurer's Report that was given by Jack VK7WJ.

The application by John Vanderlinde to become a member was accepted. Welcome John. Robert VK7NAE, responsible for Youth Affairs, hoped to report more at the next meeting. QSL cards are not moving very fast according to the report given by Greg on behalf of Max who was unable to attend.

REPEATER REPORT

No problems have been reported with two metres and it is with pleasure that it can be reported the NW will soon have a new ATV repeater on the air. The location will be at Kelseys Tiers, behind Devonport, where the tower is installed with 240V AC being available. The Visual and CW ID boards are completed and the antenna design is well on the way. Yet to be completed are a couple of boards and the purchase of the co-axial cable.

Sincere appreciation is tendered to and includes VK7s AX, OL, OM, RN, UD, WJ, WZ and Peter Westerhof for their invaluable assistance so far.

GONG AWARD

It appears the introduction of this award has kept the use of the repeater down under the three minute mark. The name has been changed and if you are heard to make a mistake or other misdemeanour, you are a contender for this award at the next meeting.

Thanks to Greg VK7ZBT for his assistance in gathering the news for me and 73 till next month. Max VK7KMF.

AR

WESTLAKES AMATEUR RADIO CLUB

21st BIRTHDAY CONTEST
***** PRIZEWINNERS *****

1st: ticket no 0063 — Sharp portable colour television VHF/UHF — Mrs J. Webster (XYL VK2BZD), Earlwood.

2nd: ticket no 1733 — Dick Smith UHF transceiver kit — T Soundy VK2ETS, Merimbula.

3rd: ticket no 1380 — Makita cordless drill and flashlight — J Saunders VK2DEJ, Ryde.

4th: ticket no. 0956 — home weather station — Efimov VK2DPY, Elermore Vale.

5th: ticket no 0348 — handyman tools to $100 value — B Laughlin, Mount Hutton.

6th: ticket no 1705 — bathroom decorator style taps, handles and fittings — P Elson, Rockhampton Qld.

Prizes were drawn at the 21st Anniversary Birthday Dinner held at the Lakeside Motel, Warners Bay on 27 April 1985 under the supervision of Ald G Pasterfield, Mayor of Lake Macquarie City.

The organising committee thanks the following for their generous donations:

Watson and Crane (NSW), Wes Hughes Timber and Hardware, M J Cant VK2CMJ and Westlakes Education and all who prepared, distributed, purchased and folded tickets to make this a worthwhile fund-raising venture All proceeds go to Westlakes Amateur Radio Club.

AR

WAGGA WAGGA '85 — 26-27 OCTOBER

The annual South West Convention will be held in Wagga Wagga this year. This event, one of the largest outside the central coast area, is already attracting exhibitor enquiries.

The National Fox Hunting championships may also be held in conjunction with this event. The expansive undulating landscape and extensive road network is sure to make this event a precedent hard to follow.

The Convention will also include fox hunts and hidden transmitter hunts for both novices and experts.

Wagga Wagga is located just off the Hume Highway. It is on the main Sydney/Melbourne rail link and has airlines serving Melbourne, Canberra and Sydney.

Don't forget to include this important event on the 1985 Event Calendar.

. . . see you there . . .

Contributed by Peter Clee VK2KZZ
Publicity Officer

AR

LISTENING AROUND

Joe Baker VK2BJX
Box 2121, Mildura, Vic 3500

Well! It is the Saturday after Anzac Day, and because of a variety of personal problems, I've missed a few deadlines. Never-the-less, here I am with a new typewriter, a typing table which I have fabricated out of a piece of junk and a nice sunny day so I'm out in the yard under the cheerful beams of "Old Sol."

It's months since I wrote the last column, yet from all over the country I've received on air compliments about past columns which is very encouraging, particularly at times when I've been going through a bad patch.

ANZAC MARCH

As I was in the Mildura march from the post office to Henderson Park (the Cenotaph) on Anzac Day I thought that before I write more about the Northern Territory, a few lines about that march might not be out of place.

I found a place among members of the Second AIF, as there was no special place for Sigs. There were about ten or eleven sections of the march led by the Mildura Pipe Band which kept us well in step. Our section was commanded by a uniformed Sergeant Major, and to hear those orders barked out for the first time after so many years, made me feel almost homesick for army life.

There were great crowds along the route of the march, many of them young people who had not even been born when WW2 was on. Men from the Korean and Vietnam conflicts marched proudly, and there were many from the womens services.

The guest speaker at the Cenotaph was an Aboriginal officer who had seen much service.

Past experience of the marches has taught me that at the end of the march, I would miss out on getting a seat in Henderson Park as the crowd arrives there before the marchers. This time, however, a young scoutmaster guided me to a supply of bucket-type seats, where I rested my weary bones. And who should I find right beside me, looking as chipper as a young colt, but "The Wizard of Oz" — VK3OZ, Bert Shire (ex VK5OZ of Tumby Bay). I don't know who was the more suprised to see the other. Bert is ex-RAAF, and this Anzac Day was his eighty first birthday.

I had brought a pocket camera with me, and needless to say I had it soon aimed at Bert.

BACK TO THE NT

Most serving personnel in the Northern Territory, by virtue of the fact that it was wartime, were not free to wander just anywhere. So, we missed out on many of the prime tourist spots that we hear of these days and were usually confined to restricted areas. However, my brother and I — he was an RAAF Security Guard — managed to keep tag of each other through the various field-telephone links (Don R Telephones and Freddie Phones).

One time I heard that he was up near Darwin on guard duty and when I got there found him standing in the middle of a minefield guarding an RAAF bomber that had failed to make it to base and found itself nose down in the mulga with its tail high in the air. As I approached along the roadway, he screamed out at me to keep back as the whole area was mined. How the RAAF got him into that patch just to keep the mosquitoes away from that bomber, I shall never know, but I took the hint and our conversation was carried out in loud voices across the minefield.

I was in the Territory when Fenton Strip and Adelaide River was bombed and my brother Frank (who died in 1983 at Mildura), said that the Zeros came in so low near Adelaide River that he could hear the bomb doors open.

BOMB ATTACK!

What's it like to be chased by a bombing plane, when you're in the back of a military truck going up a long road? Well, it happened to me and a truckload of others who were hitching a ride to Darwin up a long road from the 67 mile post near Coomalie strip. We were probably somewhere near Manton Dam when the bomber was observed approaching from the south. The pilot had spotted us, and lower and lower over the road he came while we panicked and thumped as hard as we could on the cabin of the truck. He was zooming straight towards us, then when he got so near that we could see him in the cockpit and almost hear him laughing at us, he zoomed straight up and over us. He did three or four dive-bombing attacks at us in this way and when we saw that he was one "of ours" we all shook our fists at him and would have killed him if we had got him on the ground.

SPECIAL RADIOS

In the Territory there was a special radio unit, which it was said, had gear which was so sensitive that it could intercept enemy pilots doing a test-run of their radios before they took off from their island bases. I don't know exactly where the unit was located but we all knew that it existed, and as well as listening to the enemy, their special job was to monitor our own army sigs, lest there should be some unauthorised operating. As far as I know, there never was — our own sigs having to stick to the correct message-form procedure, and on certain links it was customary, to keep up the same average number of messages per day, which of course were all in cypher. Not all of these were "Action" messages, some were dummies, just to make up the average number, for if the enemies began to notice that traffic on such and such a link was a bit busier than usual, they would smell a rat." Stations were also provided with means which any challenging station could identify and know which were ours and any that were not.

There's much, much more that I could say about the Territory. It was an adventure for us rookie soldiers who saw the north under wartime conditions, yet all of us, I am sure, would like to see the Territory again some day, and like the Diggers of Gallipoli, would like to visit again the places where we served.

AR

VK2 MINI BULLETIN

Tim Mills VK2ZTM
VK2 MINI BULLETIN EDITOR
PO Box 1066, Parramatta, NSW 2150

It is approaching mid winter so I hope that your shack is proofed against the elements. These notes cover a few activities over the next few months for you to take part in.

SEMINAR PLANNING

Is in hand to hold the 1985 Seminar at Amateur Radio House, 109 Wigram Street, Parramatta on Saturday the 21st July. The first session will commence at 10 am. Presentations of various awards will be made during the day. The Divisional broadcasts will advise further details.

REMEMBRANCE DAY CONTEST

To be held as usual next month — see rules elsewhere this issue. Last year this Division won the RD for the first time since winning in the first year the event was held in 1948. 36 years has been too long to wait to see it back in VK2. However this is an annual event so each August all States compete to try and win it back. It is hard for the larger Divisions and it requires extra effort to achieve the scoring ratio. Now that the 'Trophy' is back in VK2 how about making sure it stays here for a while. Set aside some time during the RD weekend to take part and help the VK2 score.

Photograph by Ken McLachlan VK3AH.

Left.
Steve VK2PS, the VK2 Federal Councillor accepting the RD trophy on behalf of the VK2 Division from Federal President David VK3ADW at the 1985 Federal Convention.

75TH DINNER

It is planned to hold the VK2 75th Anniversary Dinner on a weekend during September. The Federal Dinner will be held in Melbourne early November.

WICEN

Major coming exercises in the next few months, which will require a lot of operators, include the following. *Sun 'City to Surf' on Sunday 4th Aug. in Sydney. The car rally at Batemans Bay on the weekend 21/22 Sept. The Hawkesbury Outward Bound Canoe Classic on the weekend 26/27 Oct.* All amateurs are invited to assist with these events. Details and calls for operators will be made on the broadcasts nearer the time. As an experiment the weekly WICEN net times have been brought forward to 8 pm on Thursdays, 3.600 MHz and VK2RWS 7150.

SEPTEMBER AR

Is to be another special VK2 issue. If you have anything to contribute please have it reach the Divisional office at Parramatta before 17th July. If you have a small technical article send it direct to AR, there is always a need by the Editor for these.

CONFERENCE OF CLUBS

The next meeting will be hosted by Westlakes ARC at Teralba on 3rd Nov. Agenda items for discussion should be considered now and submitted through your Club to the Divisional office to allow early circulation. Items which may need later national (Federal) consideration should also be submitted to this meeting so that if passed by the C of C there will be sufficient time for other States to consider it before the 1986 Federal Convention, which will be held in Melbourne on the 1986 ANZAC weekend.

MUSEUM STATION

The Museum station VK2BQK has been re-established in the first stage of the new Powerhouse Museum in Ultimo. VK2BQK had been first set up in the original Museum in Harris Street. When this section of the Museum was closed, work started to establish a station for the new building. VK2BQK has been designed so that, on completion of the final stages, it can be relocated in the main section.

The VK2BQK station was officially launched on the evening of 14th May last by Alan Jones from Radio 2UE. A future issue of AR will carry a feature on the station. VK2BQK is operational on weekend afternoons and one day during the week. The operators are members of the Museum Radio Club. To help ease the roster workload additional operators are required. If you would like to help out, please contact Pierce Healy VK2APQ on (02) 705 6125 or leave your name with the Divisional office or the reception counter at the Museum.

Other Museum stations I know of in Australia include the Science Museum in Swanston Street, Melbourne which is used by the VK3 Division for their broadcasts. There is also Wireless Hill at Applecross in Perth. Also some static displays are in other major museums. There are several private displays which often concentrate on a particular subject or aspect of electronics. It would be nice to feature all the Museums and displays in a later issue of AR. If you have or know of a display which could be included in the feature please advise the VK2 Division or Federal offices.

HOME BREW CONTEST

It is again time to start thinking about this annual VK2 activity. Entry forms and details may be obtained from the Divisional office. Call in to the office at 109 Wigram Street, Parramatta 11 am to 2 pm weekdays and Wednesday nights 7 to 9 pm. You can ring during the above times on 02 689 2417. The presentations for the 1984 contest will be made at the July Seminar.

VK75A OPERATION

There is to be another VK2 segment early July. Amateurs who would like to be able to use this call sign in a personal capacity for a 24 hour period should register their interest with the Divisional office. Steve VK2PS is in charge of operations while the call is available to VK2 — 8 to 21st July.

CLUB AFFILIATION

At the May Council meeting the following Clubs were granted affiliation with the VK2 Division. The TARP Users Group and the Chifley Amateur Radio Club. Both groups are located in Sydney. Any club or group seeking affiliation with the Division should apply to the office for application forms.

AR

NEW BAND

On 22nd June 1985 the 24MHz or 12 metre band was released to US amateurs and the 10MHz or 30 metre band became permanent.

Full power of 1500 watts PEP output is allowable from 24.890-24.990MHz with the sub-band 24.890-24.930MHz limited to CW and RTTY only. In the sub-band 24.930-24.990MHz CW, phone, FAX and SSTV are permitted.

On the 10MHz band (10.1-10.15MHz) power is limited to 200 watts PEP on CW and RTTY, the only modes allowed.

From The ARRL Letter, Vol 4, No 10.

AR

NEW THREAT TO SIX??

A German atmospheric radar called SOUSY operates in the region of 50MHz. It is a vertical atmospheric radar or sounding system. Events in the atmosphere and up to 100km altitude are tracked.

A system has been installed for US space shuttle launches from Cape Canaveral. This system checks for severe clear air turbulence and other hazardous phenomena.

A beam peak pulse power of 200kW is used with an antenna array which has a gain of around 30dB. Multiple Yagis are used in phased array.

Resolution to 150 metres is achieved at levels between 500 metres and 30,000 metres. The profile of conditions is dynamic providing a minute to minute read-out.

The SOUSY system was developed by the Max-Planck Institute for Aeronomy. The first trial system was tested in the Harz Mountains in West Germany.

The Cape Canaveral system is leased and operated by Radian Corp of Austin, Texas.

Let us hope that SOUSY is not heard on 6 metre DX. 70cm Syledis on EME is bad enough.

Adapted by Gil Sones VK3AUI from an original report published in Electronics Week, 8th April 1985.

AR

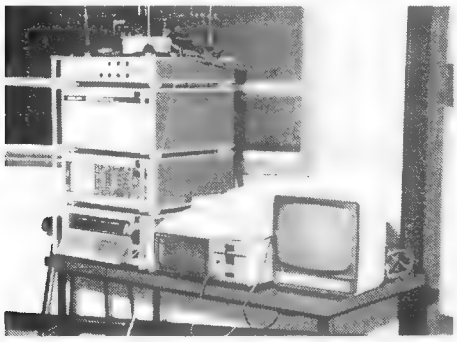
VK4 WIA NOTES

Bud Pounsett VK4QY Box 638, GPO, Brisbane, Qld. 4001.

1

2

3


4

5

8

9

All photographs were taken at the Conference of Queensland Radio Clubs, 13 and 14th April 1985, at Griffith University, Brisbane.

1 Delegates from all parts of Queensland were listening with rapt attention. 2 Mike VK4YOB, speaks on behalf of the South East Queensland Teletype Group. 3 The informal sessions are where a lot of problems are solved. 4 On display. Dept of Communications monitoring equipment including a $100,000 Doppler DF. 5 Doug VK4ADC, representing DOC during his presentation shows a long print out of activity logged on Brisbane 2 metre repeater, VK4RBN. 6 Alan VK4YAF, reports on the radio amateurs group intruder watch programme. 7 Summit meeting of federal representatives. Guy VK4ZXZ (Federal Councillor), Len Keogh, MHR (Federal Member for Bowman) and David VK3ADW (WIA Federal President). 8 Geoff VK4AG, presenting the radio amateurs group report. 9 David VK3ADW, spoke to the Conference. Seated Barry VK4BIK and David VK4NLV, Minutes Secretary and Conference Chairman respectively.

6

7

FORWARD BIAS

VK1 DIVISION

Ken Ray
PO Box 710, Woden, ACT 2606

70cm REPEATER

The 70cm repeater is back on the air after repair. It is operating at a temporary site until spring, when we can get access to Mt Ginini to install the repeater in its final location. For those interested, the technical details are:

Callsign	*VK1RGI*
Frequency	*438.525 MHz output*
	433.525 MHz input
	(DSE Explorer ch21)
Output Power	*8.5 watts*
Antenna	*25 element colinnear*
Time Out	*2.5 minutes*

The transmitter is a VHF high band unit, with the 25 watt output strip feeding a varactor tripler, which then feeds through a cavity filter to the 4 cavity diplexer. The receiver is a high band receiver, with a UHF converter. This gives it three IFs — 170 MHz, 10.7 MHz and 455 kHz. Output spurii were undectable on a spectrum analyser, which would put them at least 80 dB down.

Once the winter snows clear, the repeater will be installed on Mt Ginini; with the channel 6950 2m repeater. For those interested, Mt Ginini is one of the highest mountains in the ACT, at 1762 metres high. That makes the VK1RGI repeaters the highest in Australia, at least according to the 1984 Call Book. Mt Ginini is part of the Brindabella range, the rugged mountains which form the western boundary of the ACT, and close to the northern edge of the Kosciusko National Park. For those wanting to know where to point their beams, the site co-ordinates are:

Latitude: 35.5311 deg S
Longitude: 148.7703 deg E
(See Natmap 1:100,000 sheet 8626)
AMG — Zone 55
Easting 660500
Northing 6066600

In summer, a pleasant day's outing can be had from Canberra, driving up into the beautiful alpine country. In winter, it is often cut off by snow for four or five months; and the snow-capped peaks can be seen from Canberra on a clear day.

ITU DAY STATION — AX1ITU

Friday, 17th of May was ITU day, and the VK1 Division set up a display station at Belconnen Mall, one of Canberra's major shopping centres. The station operated from 0200 to 1030 UTC, and 109 contacts were made to the following countries: CT, EA, V2, ZL, W, AL7, C21, JA, XE and of course VK.

Thanks to the following VK1s who gave their equipment and time — KAL, PJ, NEB, CJ, ZZD, KEN, NCO, KCM, ZZT, KRM, UE, OK, NDV, ZL, IC, HZ, and ZXA.

JULY MEETING

Don't forget the July meeting on Monday the 22nd in the Griffen Centre. We will be having our mid-winter sale and coffee night. Doors open at 7.45, see you there.

AR

FIVE-EIGHTH WAVE

Jennifer Warrington, VK5ANW
59 Albert Street, Clarence Gardens, SA 5039

Well, barring any "hiccups" over the next two days, I think I shall be able to say that our display station at the GPO was a great success. At the time of writing I have just spent all day at the GPO display which coincided with the release of the pre-stamped envelope to mark the 75th Anniversary of the WIA.

We were very lucky to be able to use the VK75A call sign for this occasion, and thus ensured no shortage of contacts for the public to hear. The GPO staff were extremely helpful and this along with the free cups of coffee were really appreciated.

My thanks must go to the following:— John Moffat of ICS, and Dick Boxall for the loan of rigs. David Clegg, and David Hogben of the GPO for the "high-wire act" they did in rigging the aerials! Jack Wright for the loan of VHF/UHF aerials, power-supply and coax and all the time he has put into it; and also to Les VK5KLH, Bill VK5AWM, Cyril VK5KEM, Ray VK5RK, Colin VK5FX, Tom VK5TL and Roland VK5OU, for spending varying amounts of time there. And not forgetting the many amateurs who came along in the lunch hour, or dropped in "between jobs" to see how we were getting along.

Lastly, but by no means least a huge "thanks" to Peter Koen for two new panels on the display board, dedicated to the 75th Anniversary, and an improved lighting system; and also my grateful thanks to John and Louise Badcock for their work on the new PR "Flyers" (handouts) and for the media releases which resulted in a photographer from the News being present. If I have inadvertantly forgotten someone, I apologise in advance. It really is great to have so many willing volunteers.

(Don't stop now, we have just heard that the Morphettville News-Electronics Show will be from 18th-20th October this year!)

DIARY DATES

Tuesday 23rd July . . . A Special General Meeting has been called for this date, please refer to your "Journal" for details. We hope that this part will not take long and that there will also be a speaker, but details of this are not known at time of going to press.

AR

WA BULLETIN

Fred Parsonage VK6PF
HONORARY SECRETARY
VK6 DIVISION
Box 10, WEST PERTH, WA, 6005

At the 1985 AGM of the West Australian Division, the following were appointed to the Divisional Council.

VK6IW	*Dave Wallace*	*Membership Secretary*
VK6LZ	*Cliff Bastin*	*Treasurer*
VK6MY	*Cyril Rice*	*Peel ARG and Comet sub-committee*
VK6NE	*Neil Penfold*	*Federal Councillor*
VK600	*Bruce Hedland-Thomas*	*President*
VK6YL	*Jill Weaver*	*WA Repeater Group*
VK6ZGA	*Alyn Maschetti*	*VHF Group*
VK6ZLZ	*Christine Bastin*	*Booksales Officer*
VK6ZMG	*Dougal Gordon*	*(XYL of VK6LZ) Broadcast Officer and Vice President*

There were nine nominations for the nine positions, therefore no ballot was necessary.

In accordance with the Constitution which states that the Secretary may be appointed from outside of the Council Fred Parsonage VK6PF was appointed to the position.

AR

WIA 75th ANNIVERSARY STICKERS

Suitable for use on QSL cards or envelopes.

Help publicise your Institute's Anniversary.

$1 for 20 stickers — post paid.

QSP

FM RADIO DX

During March 1984, a low power FM broadcast test transmission was received in Italy. The transmission came from a low power test being carried out near Melbourne.

This transmission, on 106.5MHz, was being made by a local radio broadcasting group called Southern Community Broadcasters. The ERP achieved was only between 6 and 9 watts.

The report from Italy gave a SINPO report of 35333. This is a strong signal.

The transmission would have taken place close to the equinox, a good time for such propagation on other occasions.

Previously Channel 0 has been received overseas, also there have been a number of reports of FM radio station reception from Argentina.

This report must be pretty well up in the kilometres per watt stakes. One can only speculate on the possibility of 50 and 144 MHz contacts over such paths.

Contributed by Gil Sones VK3AUI from original source material in IREE Monitor, March 1985.

AR

OVER TO YOU!

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publisher.

AMATEUR COOK BOOK

The Wagga Amateur Radio Club is compiling an Australia Wide VK Cook Book.

Invitations are extended to amateurs and their families for their favourite recipes to be published in the Cook Book.

The book will be printed and for sale at the Annual Wagga Convention to be held on the 26th and 27th October 1985.

Recipes should be forwarded to the Wagga ARC, QTHR.

Thanks and 73,

Dave Longmore VK2ZYE,
Box 126S,
South Wagga, NSW, 2650. AR

Mobile Operation

Regulation 6.18 of the Amateur Operator's Handbook states, inter alia, that " . . . the licensee . . . may operate the station in a mobile capacity . . .". This seems to infer that operation in a moving vehicle is permitted.

It is a fact of life that operation from a moving vehicle is being carried out by a multitude of operators – amateurs, CBers, taxi drivers, fleet drivers and truckies. However, it is also a fact that each such operation breaks the law as interpreted by the police in Victoria.

I believe that the WIA should consider the principles involved, since our hobby at present induces many of us to break the law. I am, of course, not concerned with the law being broken by taxis, truckies — that is their business, not ours.

May I suggest an approach to the authorities concerned with a view to have the relevant regulations modified. I believe that the main objection to operating in a moving vehicle rests in the necessity to drive single-handed while holding a microphone with a receive/transmit switch. If the regulations were to be amended to specifically permit radio operation by the driver of a moving vehicle provided that both hands are used at all times to control the vehicle, it would open the way for legal operation under the following conditions:

Use of either a throat microphone or a headset microphone (lapel microphones are likely to pick up too much noise).

Use of a foot switch, a switch mounted on the steering wheel or, preferably, VOX operation for receive/transmit control.

Use of only one headset ear piece, to allow police or emergency vehicle sirens to be heard, or use of the transceiver speaker.

By using the most convenient combination of the above, operation in a moving vehicle would be no more dangerous than talking to a passenger or listening to the car radio. The use of handhelds would, clearly, be still illegal.

It would be interesting to find out whether action by the WIA in this matter is favoured by other amateurs.

Best 73,

George Cranby VK3GI,
Box 22,
Woodend, Vic. 3442
AR

TECHNICALLY — NO FRILLS CASSETTE LOG PROGRAMME

In the "Cassette Log Programme" article in March 1985 AR, the offer of "a highly abridged version for the unexpanded VIC-20", brought a large number of letters. The programme is "no frills" with the limited VIC memory in mind and like the previous programme, stores 250 callsigns plus the page number in your written log for quick reference.

With 8K expansion RAM-pack on board, the number of calls per cassette may be increased to 500. Further increases are possible at the expense of loading time of the file and for practical use, 500 calls just about takes it out. To increase the number of calls, the following two lines in the programme must be altered to,

```
570 I=I+1:C$(I)="*":IFI> 498THEN940
840 DIMC$(500),P$(500):RETURN
```

The system requires that you have many cassettes so that you split calls by country, prefix etc as described in the March 1985 article. As usual, if you want to avoid Repetitive Strain Injury from the typing, $5 to the author will get you a tape and a summary of the instructions from the March article which don't bear repeating here.

73,

Neil Cornish VK2KCN,
56 Sherwin Avenue,
Castle Hill, NSW 2154

AR

MAN IN MOTION

The Institute has received a request of assistance for the following:

The British Columbia PEP Amateur Radio Service would like to enlist WIA support and assistance in the provision of amateur radio communications for the Man in Motion World Tour, organised by the Canadian Paraplegic Association.

Rick Hansen, a world class wheelchair marathoner, will wheel 25,000 miles around the world in a historic, first ever World Tour to carry a symbolic torch of inspiration to 6 continents, 34 countries, and 60 cities with metropolitan populations totalling over 200 million people.

Rick Hansen is an articulate wheelchair athlete from Canada who has won 19 international marathons in such cities as Montreal, Toronto, Boston, Miami, Honolulu, Sydney, Australia, and Oita, Japan. Rick has won 9 gold medals in athletics at the 1982 Pan-Am Games and is a champion in several other sports. He has also competed in the XXIII Olympiad in Los Angeles in the 1500 metre wheelchair race.

The World Tour began in March 1985 in Vancouver, BC, Canada and will end 17 months later at the gates of the 40 country Vancouver World Exposition, EXPO 86, in August 1986.

The World Tour will roll through the United States and Mexico before going to Europe, North Africa and the Middle East in 1985. In 1986, Rick will wheel through Australasia, Japan and the Far East, departing from China for Central and South America and the home stretch across the breadth of Canada.

The major objectives of this historic undertaking are to provide an awareness of and potential for the disabled person, and to initiate a world wide fund for spinal cord research.

The official caravan will include one specially equipped van or recreation vehicle for Rick and his personal team and one van for an advance party who will be contacting media, making certain the route is still OK, etc.

The amateurs are being asked to provide operators who can ride in or accompany both of these vehicles to provide them with communications to each other, and transmit at least daily situation reports back to Man in Motion headquarters in Vancouver.

In British Columbia, amateur communications will be organised by the Provincial Emergency Programme Amateur Radio Service with a number of paraplegic amateurs at Pearson Hospital in Vancouver, BC operating their HF station as the local end of the communications chain. In the United States, it is being co-ordinated by the Courage Handi-Hams, an organisation of handicapped radio amateurs. It is hoped that in other countries the national amateur radio organisation in each country can be persuaded to assist the project.

I hope that the WIA will consider arranging the amateur activities in your country for us.

Thank you very much for your assistance.

Yours sincerely,

Robert Smits VE7EMD
202-13640 67 Ave.
Surrey BC
Canada
V3W 6X5
604-590-1014

Rick will wheel from Sydney to Townsville during late December 85 to early January 86. Volunteer operators to assist this marathon are required. The Institute fully supports Ricks endeavours and hopes that members, clubs or groups will provide the assistance required.

Contact the VK2/VK4 Divisions for further details.

AR

FURTHER TO QUESTIONNAIRE

I refer to the recent survey of AR readership. I wish to congratulate the Federal Executive for their initiative in conducting this survey and to urge the Divisions to make full use of the results.

This survey, when the results are fully analysed, will provide the Federal Executive and the Divisions with information on the distribution of interests of their members. This information has never been available before in this detail or accuracy. At Federal level, this information provides a data base for decisions on such things as AR content, band and mode planning, funds distribution and in negotiations with licensing authorities. It can be used at Divisional level as the basis for decisions on meeting subjects, funds allocation and activity programmes.

Hopefully, Federal and Divisional committees will make the fullest use of the information gained from this survey. The rate of return of completed questionnaires may reflect the value seen by members in the survey.

Finally, a vote of thanks must be passed to Earl Russell VK3BER, for his valuable assistance in deducting the returns to a usable form. Earl has put many hours into this task and this effort is much more than that normally expected of a volunteer official of the WIA. Well done, Earl!

73

Ray Roche VK1ZJR
Box 81,
Campbell, ACT. 2601

AR

CODE AN LCD?

Is there anyone who has information as to the coding used to activate the LCD display on small pocket calculators?

I have a number of these — not working — and the LCD display would be ideal for use with home brew projects. But the method of activating the display is **NOT** the normal strobe method used for 7 segment displays. It is a complicated four voltage level arrangement applied to **all** of the 28 connections regardless of the number of digits which are displayed. Each of the connections seems to go to several digit segments, not always the same corresponding segment. The basis of the coding is a 3 level sequence to each connection and uses all possible combinations of the four available voltage levels.

Anyone who can crack the code is welcome to a few of these displays.

Roy Hartkopf VK3AOH,
34 Toolangi Road,
Alphington, Vic. 3078

AR

ANOTHER MOTOR VEHICLE INTERFERENCE PROBLEM

Just recently, before the May issue of AR arrived at my home, I was confronted with an unusual problem concerning RF interference to a modern vehicle. After I had "cured" the problem, AR arrived and I read with interest the story by Rod VK3UG, page 17.

Firstly, let me relate my first problem. This concerned a four-wheel-drive vehicle owned by a friend. He brought the vehicle to me complaining that when he pushed the transmit button of his transmitter, the engine stopped!!!

I found this hard to believe but on test it was so. The engine, a powerful V8, stopped dead when the button was pushed, even with the engine "revving" hard. Upon investigation, it was found that the trouble was being caused by a recently connected tachometer. The instrument was fitted on the dash panel and had a lead to the "hot" side of the ignition coil. This is where the trouble originated . . . RF was being picked up by this lead to the tachometer and fed back into the electronic ignition system. Removal of the "tacho" wire cured the problem. But, the owner was keen to retain his tacho, so some RF filtering was called for.

Coaxial cable was tried with the tacho wire being fed through the inner conductor and the outer being earthed. The problem was still there although considerably reduced. The engine would only "miss" but not stop. An RF choke wound on a ferrite ring was placed in the lead to the tacho adjacent to the ignition coil. This was the answer — the problem was completely cured. Bypass capacitors were not used because this would interfere with the electronic ignition system and possibly cause other strange effects. It was just after this event that AR arrived with Rod's story. Not quite the same, but certainly involving the same approach . . .

A few days later I took delivery of a new Australian-made car, appropriately designated as a "VK" model. The old reliable two-metre gear was moved from the old vehicle and installed in the new "one". To my surprise, when turning a corner and transmitting at the same time, the flasher went crazy . . . It not only sped up as Rod described, but broke into continuous "buzzing" depending on the engine revs. In fact, my XYL thought I was using the horn when I was turning the corner and thought I was really going crazy!!! To cure this effect I re-read Rod's article with greater interest . . .

The flasher unit was located, fitted under the dash to the right of the steering column. It proved quite easy to remove being a "plug in" unit with three pins. The unit can be opened revealing a chip and a few components. I decided to install bypass capacitors outside the unit. These were soldered direct to the pins as close to the unit as possible. I used 0.22 MFD capacitors as these were available from the "junk" box. These proved to be quite effective and I am happy to relate that I can now turn corners and transmit at the same time without a loud "buzz" coming from under the dash!!!

With more and more electronics being introduced into the automotive scene, one wonders what other strange effects will appear . . .

Des Greenham VK3CO,
16 Clydesdale Court, Mooroopna, Vic. 3629

Note: Care must be taken when installing RF equipment in modern vehicles as RF has nasty effects on the electronic systems which feature in these vehicles.

AR

WHERE WILL WE BE?

I wonder where amateur radio will be in ten or twenty years time. It is noticeable that we are an ageing fraternity with too few of the younger generation joining our ranks. In a recently published American amateur magazine it was stated that the average age of licence holders there was over fifty. I would like to estimate that Australia would be similar. What can we do? I would like to put forward the view that we are, ourselves, killing the hobby by our own apathy.

Recently I had occasion to call for volunteers, firstly for new blood to come on to Council in VK6, as all members of the Council had served for a number of years and, with the exception of our two YL members, were near or into middle age. There was one nomination from outside the sitting Council, that of Cyril VK6MY who was a regular visitor already. In spite of frequent calls on the news-broadcast and at meetings, no one was prepared to serve. So we have the same members again, plus Cyril.

The second time was for volunteers to come forward to put their names down for work at the November Radio Rally. Many comments had been made previously as to the popularity of the two previous Rallies and how much annual ones would be enjoyed. Total number of volunteers apart from the participating groups? Seven. As a consequence, there will be no Radio Rally in 1985.

Lastly, I had been approached by a mother of a fourteen year old blind boy for help in preparing the boy for the May novice exam. The boy had studied in the UK for the full licence but had failed the exam. I suggested that the novice exam would be well within his capabilities, as his theory was based on the full UK licence and he had no problems with Morse. Consequently appeals were made over several news broadcasts and at the General Meeting for someone in the area to put in one or two hours a week going over regulations and generally assisting. Result NOT A SINGLE RESPONSE.

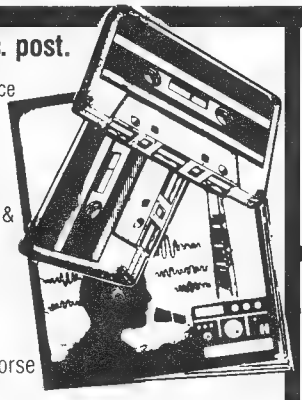
Fred Parsonage
20 Ranger Trail, Edgewater, WA 6027

AR

TAPES $5 each inc. post.

- 5 Words per minute — Novice Licence
- 8-10-15 Words per minute — Exams
- 15 Words per minute

Also availabe 6,7,9,11,12,13,14, & 30 W.P.M.



NOVICE STUDY KIT

It contains:

- Theory Training Book
- DOC Regs Book or Morse Oscillator Kit
- Morse Code Training Tape

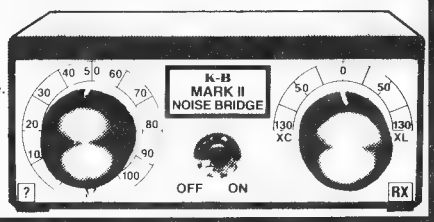
$16 post paid

NOVICE HANDBOOK
$7.50 inc. postage

NOISEBRIDGE

Adjust your antenna for maximum performance. Measure resonant frequency, radiation resistance and reactance. Better than an SWR meter. Operates over 100 MHz. Most useful test unit in your shack

$70 POST PAID



$65 POST PAID

HIGH PERFORMANCE ANTENNA TUNER

MULTI-BAND RECEIVER

COMPUTER OWNERS

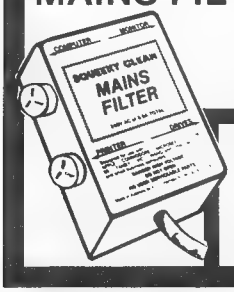
SQUEEKY CLEAN MAINS FILTER $109

The Mains Filter with its own built-in filter and transient suppressor reduces the effect of electrical noise and spikes and increases the reliability of both hardware and software.
Each outlet is individually filtered.

Protect your computer from unnecessary power problems, say 'No' to dirty power.

240V AC at 6.0A TOTAL

SUITS ALL PC and Small Business Computers



LAMINATING SERVICE

LAMINATE YOUR MAPS – DOCUMENTS
COMPLETELY SEAL YOUR QSL CARDS – LICENCES
Average cost $1 per A4 page size.

POWER LINE FILTER

Single Filter with Dual Outlets.
240 Volt at 7.5 Amp.

$29 POST PAID

ANTENNA BALUNS

3 to 30 MHz.
Maximum Power 300 Watts
Centre support.
Ideal for Dipoles, Beams, Quads.
S0239 connector.

$28 POST PAID

K. BRUCE SMITH
18 Beechworth Rd., Pymble, N.S.W. 2073
G. SCOTT, 291 Kim Ave.,
East Albury, 2640.

Silent Keys

It is with deep regret we record the passing of —

MR ROY BAXTER 20:04:85	VK4FJ
MR PETER M COHN	VK1KPC
MR GEOFFREY SAINT COOMBE 05:04:85	VK5ML
MR J M GIBSON 19:04:85	VK6GQ
MR MICHAEL FULLER JENNER 16:04:85	VK7MJ
MH FRED MAZURE 31:03:85	VK6MZ
MRS VALERIE NORTON 19:05:85	VK4FKL
MR A G OSWALD 03:04:85	VK2AEF
MR LIONEL TAMSETT SWAIN 26:05:85	VK2CS
MRS VERLE WESTON	VK2MR

Obituaries

ROY BAXTER VK4FJ

Yet another old timer has left us, with the passing of Roy Baxter, age 70 years, on the 20th April. Roy held his call, VK4FJ, for 50 years, and, in the past, was one of our top DX men. He was one of the brave souls who first activated Mellish Reef in July 1972, and was a long time member of the First Class CW Operators Club, AMIRE, Amateur Advisory Committee and spent some 48 years in the Salvation Army Temple Band.

Roy also served every day of World War 2 in the Royal Australian Navy, with most of that time at sea. Failing health over the last few years prevented him from pursuing his hobby to the full extent. Roy will be sadly missed by all his mates world-wide.

Fred Lubach VK4RF

AR

MICHAEL (MIKE) F JENNER VK7MJ

Mike was born in England in 1907 and came out to Tasmania in 1912. His early life was spent on Tasman's Peninsula, where, with his father and elder brother, he experimented with the wonderful world of radio.

With a super-regen receiver using a 'Weaco' valve, occasionally they would communiate with VIH Hobart Radio, sending Morse with a damp finger dabbed on the grid.

The seeds of an interest in radio communications were therefore sown at an early age, but did not bear fruit until much later in life.

Mike trained as a motor mechanic in Hobart, and for a time was employed in the trucking garage of Anthony Hordens' in Sydney.

In 1941, he and his wife, Grace, moved back to New Norfolk, in the Derwent Valley, where he lived for the remainder of his life.

During the years his interests included fishing and photography, he was involved in scouting, and was Deputy Fire Chief of the local Fire Brigade.

His interest in radio was re-kindled in the fifties when his eldest son started playing with radios, and the Morse training was put to good use.

Mike was convinced that he was too old to pass an exam but with a little help from his friends, qualified for his amateur licence in 1973. Forced to retire early due to ill health, amateur radio, and later, a computer, made a wonderful and fulfilling hobby for him, Morse being his first love, followed closely by RTTY.

He was a 'man' in the true sense of the word — thoughtful, loving, caring, and a real gentleman.

His family was with him at the end and his caring, understanding and acceptance of the inevitable, helped make his passing, on 16/4/85 at the age of 77, so much easier for his loved ones.

He was my friend, and my father.

Mike Jenner (Jnr) VK7FB

AR

FRED MAZURE — VK6MZ

It is sad to report the passing of Fred Mazure VK6MZ, who died suddenly on 31st March 1985. He was in his late seventies.

Fred rose to the rank of Warrant Officer in the RAAF, and after the war spent all his working life farming in the Busselton district. He never married, and after his retirement he moved into town, where he lived alone until his death. It is to people like Fred that amateur radio is of such inestimable value. In earlier days he was a keen CW operator, and in recent years kept regular daily skeds with friends on 80 metres. Despite his age, Fred kept well abreast of the technical scene. His shack was well equipped for HF and VHF, and he subscribed to several radio magazines, which he always read thoroughly.

Like most of us, Fred may not have made any great mark on the world scene, but he was a good friend and neighbour, and this kindly and gentle man has a place in the hearts of those who knew him.

Ted Davies, VK6ED

AR

LIONEL TAMSETT SWAIN VK2CS

The death on Friday 26 April of Lionel Swain VK2CS closed a chapter of amateur radio history in the Newcastle area.

Born in 1902 in Hamilton, a Newcastle suburb, Lionel took an early interest in the newly emerging "wireless" science and by 1922 he was responsible for the founding of the Radio Society of Newcastle of which he was the first president. The call sign 2SO was allocated to this organisation.

It was two years later that Lionel gained his own call sign 2CS and, as was common in those times, he conducted on air tests with a small group of enthusiasts but his music transmissions on the medium wave band reached a far wider audience in the local area.

In 1929, as with all other call signs in Australia, the prefix "VK" was added and Lionel became VK2CS, the call by which he was known until the time of his death.

He was a civil engineer by profession and on retirement held the post of Distribution and Maintenance Engineer, Water Supply, Hunter District Water Board. During World War II he served as a Lt Commander RANR in the Milne Bay area and later was seconded to the Department of Munitions where he worked on radar research in Sydney.

Lionel was a serious experimenter and meticulous with his construction work. Any of his "projects" could have won a constructor's prize. He was an expert on aerials and for this reason alone was much in demand as a lecturer. He had a keen perception of the part radio was playing in the technological developments of Australia and he was often quoted on technical matters in the press. He was a keen WIA supporter from the earliest days and held the post of President WIA Hunter Branch for some years. In 1962 Life Membership of the Institute was bestowed upon him.

The large attendance, including many old timer radio amateurs, at his funeral was an indication of the high esteem in which he was held in the community.

Lionel is survived by his wife Enid and family including several grandchildren and it is to these that our sympathy is directed in the loss of their loved one, a true radio amateur and a gentleman.

K Howard VK2AKX

AR

STOLEN EQUIPMENT REGISTER

In accordance with 1984 convention motion 84:17:01, the Federal Office has established a stolen equipment register. Members wishing to take advantage of this register, either to publicise their loss or to check equipment offered to them, may write or telephone the Federal Office their queries.

Update to the list published previously.

MODEL	SER NUMBER	FROM
ICOM IC-25A	03831	VK2DPM
ICOM IC-45A	01876	VK2DPM
ICOM IC-211	6804309	VK3BRV
KYOUTO FM-144/10	5027	VK2KUR
DS EXPLORER 70cm TRANSCEIVER (HAS EXTENSIVE INTERNAL MODS)		
ICOM IC-215	05156	VK2AMX
YAESU FT-209RH	4KO50838	VK3CE (BLUE VYNL CASE)
ICOM IC-2A	04484	VK1MX
YAESU FT-207R	10132725	VK2EMC
KENWOOD TS-120V	0081224600	VK2VWN
ICOM IC-22	12266	VK3BLC
KENWOOD TR-2400	0061926 (Call sign engraved on case)	VK2PJ
YAESU FT-708R	1HO1948 (Call sign engraved on case)	VK2PJ

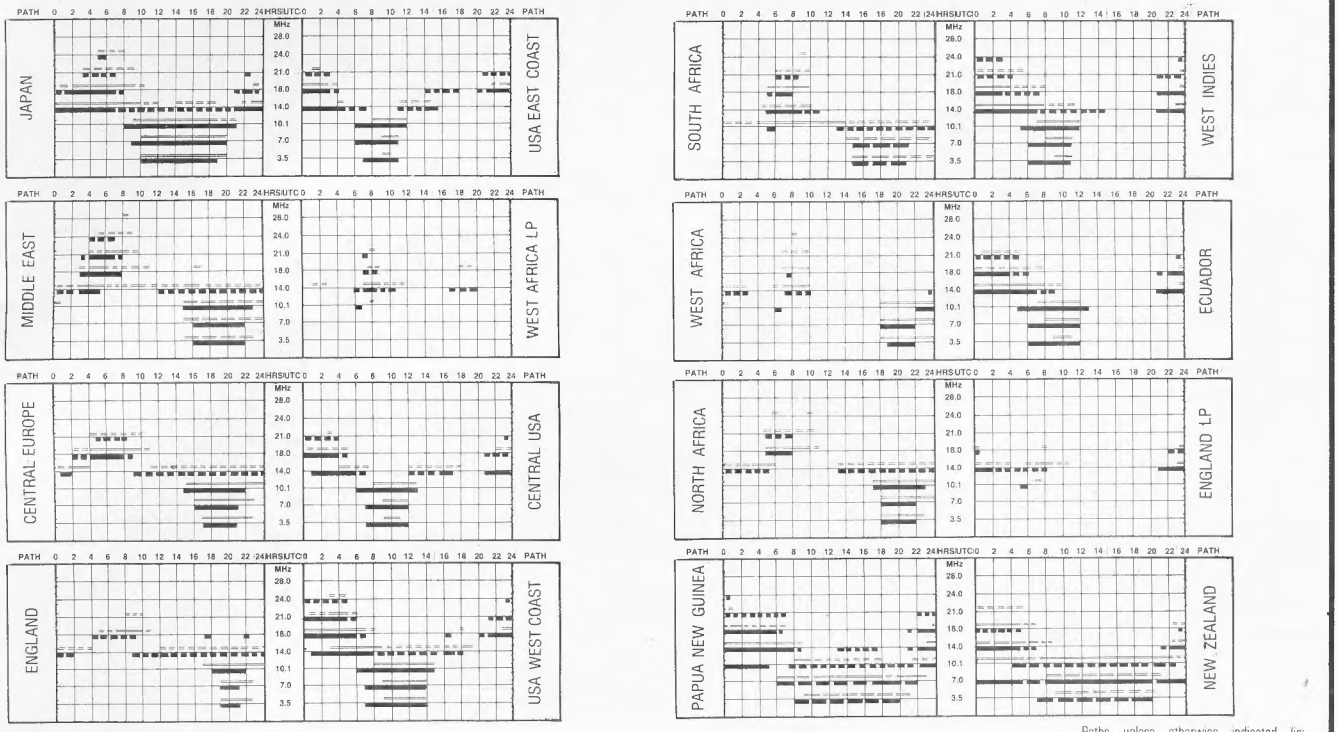
The first success of this register has been notified to the Federal Office. An Icom 2A has been discovered by an alert member in a batch of equipment offered to a retailer. The equipment is now back with its owner.

If you are offered second hand equipment, please check with the stolen equipment register before purchase.

AR

IONOSPHERIC PREDICTIONS

Len Poynter VK3BYE
14 Esther Court, Fawkner, Vic, 3060



LEGEND

From Western Australia (Perth)

From East Australia (Canberra)

Better than 50% of the month but not every day (continuous lines)

Less than 50% of the month (short broken lines)

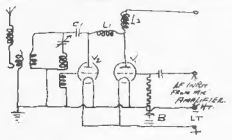
Mixed Mode Dependent on angle of radiation (long broken lines)

Paths unless otherwise indicated lie: LP = long path) all paths are short path.

Predictions reproduced courtesy of the Department of Science and Technology, Ionospheric Prediction Service, Sydney.

All times in UTC.

75th Nostalgia



EXAMINATION PAPER PRE-WWII

Commonwealth of Australia
PMG Department
Amateur Operators' Certificate of Proficiency
Time allowed 2 hours

THEORY

1 Discuss the relative merits and demerits of Heising and Suppressor grid modulation.
2 Draw a schematic diagram of a 3 stage crystal controlled transmitter suitable for amateur operation.
3 Draw a diagram of a key click suppressor. Also state what method you would adopt to prevent high frequency surges getting back to the mains.
4 Draw a diagram of a B class modulator and briefly discuss its function.
5 Assuming that a screen and plate of an audio frequency amplifier takes 5 and 15 mA respectively, what size bias resistor would be required to give 30 volts negative bias on cathode of indirectly heated valves. State how bias takes place.
6 Describe 3 kinds of microphones used by amateurs and their functionings.
7 Describe, and draw a circuit of a modern frequency checking unit for use in amateur stations.
8 Calculate the capacity of 1, 2 and 4 mF in parallel connected, in series with 3 and 3 mF which are also in parallel.

REGULATIONS

1 Give details of the distress call for telegraphy and telephony.
2 How many times may the CQ call be used? Give an illustration of the use of that call.
3 Which is signalled first in a message, the time or date? What time is indicated by the figures 0420?

Submitted by Fred Lubach VK4RF
AR

NOTICE

All copy for inclusion in September 1985 Amateur Radio must arrive at Box 300, Caulfield South, 3162 no later than midday 22nd July.

HAMADS

PLEASE NOTE: *If you are advertising items FOR SALE and WANTED please write each on separate sheets, including ALL details, eg Name, Address, on both. Please write copy for your Hamad as clearly as possible, preferably typed.*

- **Please insert STD code with phone numbers when you advertise.**
- Eight lines free to all WIA members. $9 per 10 words minimum for non-members.
- Copy in typescript please or in block letters double spaced to PO Box 300, Caulfield South 3162.
- Repeats may be charged at full rates.
- QTHR means address is correct as set out in the WIA current Call Book.

Ordinary Hamads submitted from members who are deemed to be in the general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being resold for merchandising purposes.

Conditions for commercial advertising are as follows: The rate is $22.50 for four lines, plus $2 per line (or part thereof) minimum charge $22.50 pre-payable. Copy is required by the deadline as stated below indexes on page 1.

☐ TRADE ☐

AMIDON FERROMAGNETIC CORES: Large range for all receiver and transmitter applications. For data and price list send 105 x 220 mm SASE to: RJ & US IMPORTS, Box 157, Mortdale, NSW. 2223. (No enquiries at office . . . 11 Macken Street, Oakley). Agencies at: Geoff Wood Electronics, Rozelle. NSW. Truscott Electronics, Croydon. VIC. Willis Trading Co., Perth. WA.

70 cm power/VSWR meters (see p 23, AR July 1984) 50 W @ $112.80. 23 cm long loop yagis from $64.80. Waveguide modules, tubing & flanges. Gun & mixer diodes at good prices. 0.141" semi-rigid coax @ $2.50/metre. 1/16" DS PTFE board @ 14c/sq cm. 17 pF UHF Porcelain variables @ 10 for $3.50. Send SAE for lists to Microwave Developments, 6 Netley Road, Mount Barker, SA 5251.

☐ WANTED — NSW ☐

MAGAZINES — Australasian Radio World, Radio & Electronics, Radio Monthly, etc. Also lamphouse radio books, Mingays IF frequency index & official service manual No 9. Brian VK2EFD, QTHR. Tel: (049) 77 2178.

SSB CRYSTAL FILTER with USB & LSB xtals, 5 or 9 MHz. Ray VK2BRR, QTHR. Tel: (043) 92 3236.

☐ WANTED — VIC ☐

AR7 — not necessarily working. Details to Fred VK3DRX, QTHR. Tel: (03) 787 2866.

FT-107R tvert to match series 107 Yaesu. Price to Mal VK3KSA. Tel: (03) 726 8752 AH.

MONITORSCOPE — YO-100 or YO-101. Also Hy-Gain 2 el triband quad. VK3YJ, QTHR. Tel: (03) 398 4192.

PROP PITCH ROTATOR. Working or for spares (especially low speed spider bearings). Command rx BC-946 (R24-ARC/5) 520-1500kHz. To complete collection. Any cond. Don VK3DON, QTHR. Tel: (03) 848 3059.

ROTATOR — Ham II or Ham M with controller or suitable heavy duty type for use with TH6DXX. Gordon VK3DBU, QTHR. Tel: (050) 83 3380.

☐ WANTED — QLD ☐

RCA TX TUBE MANUAL. Army PRC-10, PRC-9 radio sets, aerials RS-292, AT-339, power supply AM-598U. VK4EF, QTHR. Tel: (07) 38 1803 AH.

☐ WANTED — WA ☐

CRYSTALS — for repeater channel 7350 (ch15). Miniature HDK type, 5mm pin spacing. 2 sets required if poss. Any reasonable price paid. Ted VK6ED, QTHR. Tel: (097) 52 1173.

DIGI-DISPLAY — DG-5 for Kenwood TS-520S. Charlie VK6MP. Tel: (09) 271 4965 — shift worker, phone anytime.

☐ FOR SALE — ACT ☐

DECEASED ESTATE — VK1FS. Yaesu FT-757 $750. Yaesu FT-107 $650. Kyokuto 25W, 2m FM $225. Clipsal GPO type key $30. LP-50 low pass filter $15. Kenwood SW-200 meter + SWC-1 coupler $80. Scalar SC-22DX 5 band trap vert $50. TH6DXX tri-band beam $250. John VK1CJ, QTHR. Tel: (062) 51 1816 AH or (062) 64 3459 BH.

KENWOOD TS-820S, VFO-230, AT-230, opr & svce manuals, new $1100. Yaesu FT-290R, cradle, manual, as new $375. FL-2050 all mode linear, new $150. YP-150 dummy load/watt meter, 3-250MHz $80. Osker SWR mtr $50. Taxan 12" green monitor, new $150. Olympia ES-100P daisy wheel typewriter/printer $800. Extra RS-232 interface for Olympia $175. Henk VK1ZVR. Tel: 80 5469 BH or 48 9586 AH.

UNIMETRICS STINGRAY II CB converted to 24 channels on 10m USB & AM. Ex cond. $140 ONO. Frank VK1ZL, QTHR. Tel: (062) 81 3956.

☐ FOR SALE — NSW ☐

FT-707 with mic & h'book in ex cond. $475 ONO. Ray VK2TV. Tel: (043) 25 8549 BH or (043) 92 2244 AH.

ICOM IC-211 2m all mode AC tcvr. $425. VK2CIM. Tel: (060) 25 1843.

ICOM IC-701, PS-701, ICRM-3 controller. All ex cond. $690. Macrotronics RTTY interface, software (cass & disk) for Apple, MDK-17 Modem. All cost over $500. Sell $190. Roger VK2DNX, QTHR. Tel: (02) 546 1927.

KENWOOD TS-120S with mic & 500Hz CW filter fitted + AT-120 ATU. Both ex cond. W/shop & oper manuals $525. Icom 260A all mode 2m rx/tx c/w mic, manual, leads $300. Helical mobile whips. ASE. ADJ stubs for resonance 50 ohms. V/well made. 80, 40, 20 & 15/10m. Ex cond. All $30 each except 80m $35. VK2DJH. Tel: (043) 24 7630.

KENWOOD TS-520 tcvr fitted with 500Hz CW filter, + Kenwood remote VFO-520. Both one owner & in good work ord. Complete with mic & connecting cables with h'books for both units & orig packing. VK2BFJ, QTHR. Tel: (043) 32 5758.

KENWOOD TS-520S tcvr — used 3 times, still in orig pack. Kenwood antenna tuner for all bands, brand new. Yaesu lin amp FL-2000 output to 2000W CW or 1200W voice. Has 2 new output triodes fitted. Battery charger for 6 & 12V, new $10. Yaesu spkr $10. Kenwood Micro Three 2 moving coils, new. Yaesu Super Crystal, in ex cond. Vertical ant 10-40m. New in orig box, never used. Number of Absorption Wave meters Q-Max. $5. Scope soldering iron $10. New British soldering iron $10. Multi-range multi-meter. Needs small repair $5. Quantity of sundries too numerous to list. Tel: 48 5097 Sat or Sun to arrange convenient time to call. Bert Hay, Flat 1/rear 21 Redleaf Avenue, Wahroonga, NSW.

KENWOOD TS-820S. 1 owner, recently serviced by Kenwood. Immac cond complete with w'shop manual & MC-50 mic $450. Icom IC-70 comm rx, as new. $420. Ken VK2XS, QTHR. Tel: (02) 707 4393.

TOWER SECTIONS — large quantity, ex-Government triangle, galv, 6' lgth. Bolt together. $10 per section + freight. Trio 550 rx. 30MHz Model 9 R-59DS. Ex cond with manual $150 ONO. A Walsh L20181, QTHR. Tel: (048) 61 2092.

TV CAMERA. B&W Philips LDH-215, transistorised, video & RF outputs. Zoom Lens, 12V & 240V, 4.5" pic tube view finder. 5.5kg. H'book $100. VK2AZT. Tel: (069) 42 1392.

YAESU FC-700 ANT TUNER. As new $160. Yaesu mobile 2m stub (RSE-2A) $10.

RSL-7A 40m resonator $22. RSL 3.5 80m resonator $22. All perfect. Laurie. Tel: (062) 54 2679.

YAESU FT-102 (3x6146B) tcvr with MH-1B8 mic, WARC bands. As new. $900 ONO. Ern VK2AEZ, QTHR. Tel: (065) 54 8269.

☐ FOR SALE — VIC ☐

CLEAN OUT — AF/RF Tech sig gen 20-D $75. TV align gen & osc Heathkit $40. 11 el, 2m beam (BWW fittings) $50. ZL 16 el special 2m beam. Designed & made by VK3AUP $85. ATV module 444.25 $50. Wafer switches, rotary. Electro caps assorted. Assorted prices. Valves, 803 etc. Mal VK3KSA, QTHR. Tel: (03) 726 8752 AH.

DECEASED EQUIPMENT: Yaesu FRG-7 comm rx in good work cond. Copy of Radio Amateurs H'book, World Radio TV H'book, ARRL Antenna Book & assorted pieces of equip. Price $250 ONO. Tel: (03) 277 4936.

FT-102 with narrow SSB & CW filters. FV-102 DVFO, FC-102 tuner, SP-102 spkr, desk & fist mics. 3 mths old $1500. Tokyo Hi-power linear pair 4x50A, 1000W. WARC bands $750. Kenwood TS-670, 7, 21, 28, 52MHz + gen cov rx. 6 mths old. $675. Delica digi D/M to 500MHz $150. Delica ant imped analyser AZ1 $450. VK3OT. Tel: (055) 72 3333.

KENWOOD TR-2400 H'held 2m tcvr + ST-1 pulse charger with ext mic & aerial connections for base station operation. MC-30S 500 ohm mic to suit the lot. $250. Frank VK3DDK, QTHR. Tel: (03) 529 1686.

SHACK CLEAN OUT. 2 section wind-up tower c/w all guys, winches & tiltover mechanism. Will free stand to 35', total hght 47' $500. TH3Mk3 c/w balun GC $250. FT-101 with processor & CW filter, AC/DC. $275. Woodpecker blanker $50. CW filter to suit TS-430 etc. $50. Europa 2m transverter to suit 101 series. $150. Set of 6, 2V, 500Ah batts to power SS rigs. GC $100. Assort mags, coax, turnbuckles, guy wires etc. Offers? Will accept any reasonable offer. Peter VK3QI. Tel: (03) 29 6396 AH.

SSTV ROBOT 400. Asaca Monitor, Asaca Camera, National Tape Recorder, partly built keyboard with all parts, cables and instruction books. All very little use and in EC. Tel: (03) 725 9285 AH.

YAESU COMM RX. All bands incl 27MHz FRG7. .5-29.9MHz. Perfect cond $250 ONO. N J Hawkesworth. Tel: (03) 82 4853.

YAESU FT-480R, all mode, 2m tcvr. Excell cond. $400. Tony VK3DXS. Tel: (03) 725 8071.

☐ FOR SALE — QLD ☐

ASSORTED VALVES FOR ONLY 50 CENTS EACH. Most brand new. 1S2, 5AS4, 5V4, 5Z3, 6H6, 6L6, 6N3, 6N8, 6R4, 6V4, 6Y9, 6AB4, 6AH6, 6AM5, 6AS6, 6AU4, 6AL3, 6AV6, 6AZ8, 6BM8, 6BN8, 6CK6, 6CM7, 6CW5, 6DC6, 6DE7, 6DX8, 6EA8, 6EB8, 6EJ7, 6GV8, 12AB6, 12AU6, 12AU7, 12AV7. Metal tubes 6SA7, 6SH7 etc & lots more. Fred VK4RF, QTHR. Tel: (07) 200 7916.

BLACK CTW ANTENNA. Resonant 3-30MHz, invert V configuration. Near new. New price $120, asking $95 ONO. Rob VK4CRM ex VK4VRM, QTHR. Tel: (076) 35 0142.

CTV CAMERA. National WV-3200N. Built in B&W monitor & auto zoom $450. Telequipment CRO (needs repair to time-base). Valves-572s, Q83/300-4-125As new, TY4/1250s new, HR-8 heat dissipating connectors. Vacuum variables 5:50pF, 15kV (Amperex), 16uF 5000V W paper caps, AWA field test set A-412, VHF/UHF with 140-180MHz module. Ex cond. 4-1000A valves. Single phase trans, 2000-1800-CT, 1800-2000V at 1.75kVA. Collins 455kHz mech filters, old radio valves, etc. VK4ZJB. Tel: (07) 269 6647.

☐ FOR SALE — SA ☐

FT-101B tcvr, DC-DC converter. AC-DC power cables, spare tubes, mic, pwr/SWR meter + patch leads. Diawa lo-pass filter, instr man (p/copy 101E/EE). Good PO, Good cond $450. Also IC-2E, 2m h'held tcvr, 2 batt packs + charger, carry case, spkr/mic. Ex cond & orig pack. $250. Simon Ex VK2PMM/ELT/5BSM. Tel: (08) 269 1213.

FT-101E with ext VFO FB-101B & match spkr. $550. George VK5NGB. Tel: (08) 337 8813.

SIEMENS 100 TELEPRINTER. $100 ONO. Trevor VK5ATB, QTHR. Tel: (085) 62 2886.

TRANSMITTER. AM in 6' steel cabinet. Slide-in units. 160-6m. 829B final. Modx 100W amp. Tx tubes 4-65A, QE3-300, 2x807s, 4x866As, 1x829B & socket, 815, 4CX250B (new), 4x150A (7034), 4E27 (like 813), VCR139. 200 rx tubes incl 2 sets KW2000. Vintage radios & recorders. Tel: (08) 271 6841.

YAESU FT-101E HF tx in orig carton. 80-160m incl 27MHz. $325 ONO. Owner up-grading. Recently tuned & serviced. Rob VK5ARC. Tel: (081) 381 7261 or 275 9230. Will ship interstate.

☐ FOR SALE — TAS ☐

AZDEN PCS-300 2m h'held. As new, complete with charger, h'held ext spkr/mic & leather case. $255 ONO. Kenwood HMC-1 headset/mic with VOX. New, suit TR-2600 h'held. $30. Will post above items. VK7AN. Tel: (003) 31 7914.

☐ FOR SALE — NT ☐

SHACK CLEARANCE. Yaesu FL-2100Z HF lin amp, like new, $640. Cushcraft A-3 Yagi, CD rotator, 13m winched HD steel tower, $750. BY-1 paddle keyer $75. Shure 444D desk mic, $110. MFJ 1224 RTTY/CW comp interface, $175. W2AU/W2VS 10-80m trapped dipole, 100' coax, $95. Larsen LM-MM 2m mag mt ant, new, $95. Tokyo HL-30V 2m 30W lin amp $75. Xitex SCT-100 (ASCII/Baudot term). Keytronics kybd, in case. NEC B&W monitor, $175 for all. TEK P-6106 probe $95. Apple Super Serial RS-232C card, $175. HP-15C calculator, 2 manuals, $225. 2kW Ultimate Transmatch ATU, roller ind, balun etc. $275. Gould/Advance OS-3300B 50MHz dual trace, dly'd swp, lab qual. CRO, 2 probes, $1750. Most items ONO. Shipping by arrangement. Nick Ellis VK8DE, QTHR. Tel: (089) 52 3692.

ANSWERS AOCP THEORY

1. b	*11. a*	*21. a*	*31. c*	*41. d*
2. c	*12. c*	*22. d*	*32. c*	*42. b*
3. c	*13. c*	*23. c*	*33. a*	*43. c*
4. d	*14. b*	*24. c*	*34. b*	*44. a*
5. a	*15. a*	*25. d*	*35. c*	*45. d*
6. b	*16. d*	*26. b*	*36. b*	*46. b*
7. a	*17. d*	*27. d*	*37. b*	*47. c*
8. d	*18. b*	*28. c*	*38. d*	*48. c*
9. a	*19. b*	*29. b*	*39. c*	*49. a*
10. b	*20. c*	*30. a*	*40. a*	*50. c*

ADVERTISERS' INDEX

AM-COMM ELECTRONICS 7
ANDREWS COMMUNICATIONS SYSTEMS ..12 & 13
ATN ANTENNAS 23
BAIL ELECTRONIC SERVICES .....IBC
BICE-BAIS INSTRUMENTS & CONTROL EVALUATION 43
CHIRNSIDE ANTENNAS 26
CLOCKWORKS OF CANBERRA 43
DATON ELECTRONICS 23
AUSTRALIAN ELECTRONICS 2
ELECTRONICS TODAY INTERNATIONAL .....26 & 45
EMTRONICS 3
FERGUSON TRANSFORMERS PTY LTD 43
GFS ELECTRONIC IMPORTS .....IFC
HIGH TECHNOLOGY COMPUTER SYSTEMS PTY LTD 39
ICOM AUSTRALIA PTY LTD .....BC
K BRUCESMITH & G SCOTT 61
RIALTO INTERNATIONAL 3
TRIO-KENWOOD (AUSTRALIA) PTY LTD 26
WECAM 17
WILLIAM WILLIS & CO PTY LTD 19
WILLIAMS PRINTING SERVICE PTY LTD 23
WIRELESS INSTITUTE OF AUSTRALIA (NSW Div) NOVICE LICENCE 23

PROUDLY PRINTED IN AUSTRALIA

Printed by Waverley Offset Publishing Group, (03) 560 5111.

NEW 2m FM HANDHELDS from YAESU

YAESU

bail

FT203R

2.5 watt
144-148 MHz

VOX operation with optional YH-2 Headset.

Thumbwheel Channel Selection.

PA-3 DC/DC Car Adapter/Trickle Charger (option)

FT209R

3.5 watt/350 mW

FT209RH

5 watt/500 mW

Microprocessor controlled

10 Memories

Reverse Repeater

Power Saver to extend battery life

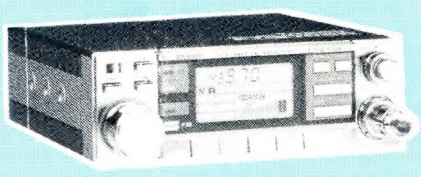
VOX operation with optional YH-2 Headset

PA-3 DC/DC Car Adapter/Trickle Charger (option)

bail

YAESU

FRG-8800



FT-2700RH

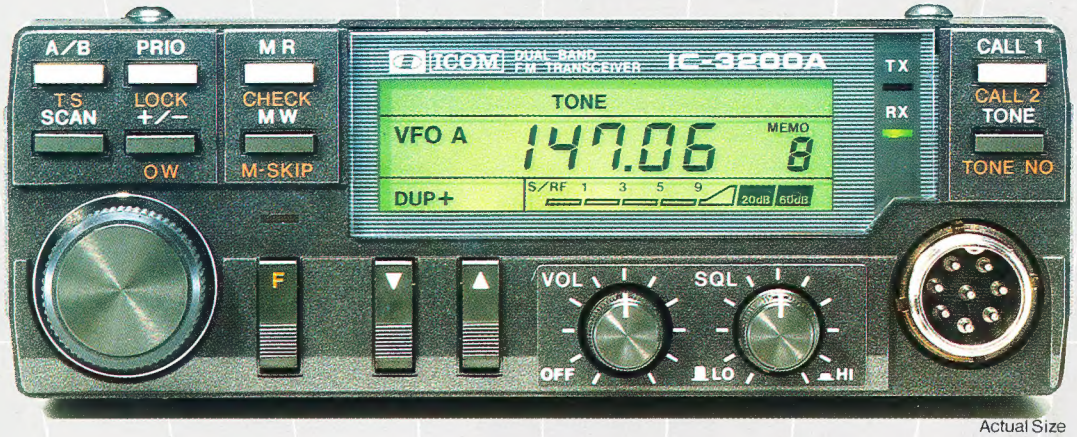
bail

BAIL ELECTRONIC SERVICES
38 FAITHFUL STREET, WANGARATTA 3677
Telephone: (057) 21 6260 — Telex: 56880
AGENTS IN ALL STATES **Mail Orders and Bankcard Welcome**

bankcard welcome here
MasterCard VISA
Stan Roberts and Staff — VK3BSR

AR85

ICOM'S IC-3200A Dual Band Radio.



Actual Size

It's the most compact size, most affordable price.

The IC-3200A is surprisingly small, so small we think it's the smallest Dual Band radio in the amateur service, but that doesn't affect performance or PRICE.

POWER. 25 watts of output power is available on both bands. Or if you prefer, low power is adjustable (internally) from 1 to 10 watts. Great if you have an afterburner.

SIMPLE YET FLEXIBLE: You don't want to be fiddling around with a squillion controls in heavy traffic, so ICOM have provided the minimum number of front panel controls to do your job.

MEMORY. 10 tunable memories are available each capable of remembering the receive and transmit frequencies, and each can be tuned up or down when selected. Yet the radio will automatically return to home frequency when reset. These memories are backed up by a lithum battery. Memory lockout is used to scan only the memories required.

SCANNING. Four scanning systems are available. Memory scan, Band scan, Programme scan and Priority scan.

OUTSTANDING FEATURES: A built-in duplexer means only one antenna connection with a minimum of messing around. A Dual Band Antenna will be available shortly. 5KHz and 25KHz steps of tuning are provided. Option UT-23, a voice synthesizer, is backed up with many other accessories for the home or car.

ICOM

Simply the best.

7 DUKE STREET,
WINDSOR, VICTORIA. 3181
PHONE (03) 51 2284

ALL SPECIFICATIONS ARE TYPICAL ONLY

ICO 019

VOL. 53, No. 7, JULY 1985

Registered by Australia Post — Publication No. VBH 0569